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ABSTRACT

The survey methodology outlined in these guidelines is aimed at helping the professional planner in a developing nation to anticipate user information needs for the population as a whole according to the particular characteristics of his own country. Part of the initial planning and design of a national information system, such a survey must be able to correctly identify the user groups, as well as to discover the particular types of materials and resources that are most suitable and how they could be assembled and organized. Guidelines are provided for two groups of planners. Part A, addressed to policy makers and administrators, is concerned with the analysis of user needs, identification of groups of users, organization of surveys, methods of data collection, and data evaluation. Part B, intended for operating personnel, focuses on similar areas but in more detail, and further considers sampling and response rates, construction of questionnaires, data processing and analysis, and report procedures. Each part includes a list of references and 11 sample questionnaires are appended. (RAA)

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UNISIST GUIDELINES
for the
CONDUCT OF USER STUDIES

Prepared by

Geoffrey Ford, Keith-Wilson-Davis
and Joseph Becker

Edited by

Geoffrey Ford

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Preface

These guidelines have been prepared by the Centre for Research on User Studies under contract for use in developing countries. They are presented in two parts. Part A is addressed to policy makers and administrations, while Part B is more detailed and is addressed to personnel responsible for undertaking programmes of assessment of user needs. There is inevitably, and intentionally, some overlap between these parts.

These guidelines are presented in draft form only. They have not yet been tested in the field and cannot be regarded as definitive. This present draft has been edited by Geoffrey Ford; Part A includes material prepared by Joseph Becker, of Becker & Hayes Inc., for draft NATIS guidelines, and Part B consists largely of a re-arrangement of material prepared by Keith Wilson-Davies for the first draft of these guidelines. Additional material is by Geoffrey Ford, and we are grateful to a number of people for comments; we should like to mention especially Michel Menou who supplied us with a number of references, as well as commenting in detail on the first draft.

A.1 Analysis of User Needs

Each nation has an importantresponsibility to husband its information resources for the purpose of developing its economy and enlightening its people. To be effective, however, such an effort must allow knowledge to be utilised simultaneously by individuals and by the aggregate society.

Structuring a national information system has a major effect upon a nation's future economic and social development. A well organised, carefully planned national information system can produce synergistic effects that accelerate progress and enhance development. But a disorganised information system can lead to paralysis of decision-making and a decline in national growth and culture.

The overall objective of a National Information System is to enable countries to serve the reading, reference, and research needs of their populations. Since a country's population is usually heterogenous, the planner's initial purpose must be to develop a basic understanding of the collective population and later to segment the population into meaningful subsets to be addressed individually according to predetermined priorities. The next step is to discover what particular types of materials and other resources are most fitting for the country in question and how they should be assembled and organised.

Assessing the current and prospective information needs of an entire population is a complex process for which there is little precedent. It presupposes detailed knowledge on the part of the planner about his country's demography, population characteristics, direction of future growth, etc. Unfortunately, these data are not always available nor is the information planner normally skilled in all of the techniques needed to identify and analyse user needs comprehensively. He must, therefore, be prepared in some cases to make choices based on incomplete or inaccurate data, or else be ready to persuade others in his government to install those data collection systems crucial to such decision-making.

In most countries, use of demographic data for planning national health or transportation systems is common. But in the library and information science field, there is little evidence that demographic data and population projections have been rigorously and consistently applied to long-range library, archives, and documentation planning. Yet, the value and importance of using such data for planning at the national, regional, and local level cannot be overstressed. These data, whether acknowledged or not, ultimately govern and regulate library, archives, and documentation centre growth at the three different levels within a country.

For national planning purposes, the word "user" refers to all potential beneficiaries of a national information system, and not just those who would be using the facilities at a certain time. Such potential beneficiaries include individuals, businesses, government agencies, and other miscellaneous organisations that use information regularly to make informed decisions and to achieve particular goals. Indeed, potential users are nearly everyone:-

> "Users are individuals, each with unique informational, educational, psychological, and social needs. A person may need 'practical knowledge' to solve immediate problems in his daily life and work. He may need 'professional knowledge' to further his continuing education. Or he may need 'intellectual knowledge', the kind that furthers his understanding of the arts, humanities, and sciences, and which enriches his personal life. Reading for pleasure, pursuing an innovative idea, or exploring knowledge just to satisfy one's innate curiosity, are other valid motives for reading, listening or looking. In addition, people feel the need for ethical, religious and philosophical insights."

> "Organisations, like individuals, need information and knowledge. Business organisations need facts and data to forecast a market, develop a new product, or adapt a new technology. Schools need information to improve and extend the learning process. Research organisations need information to synthesize new data with known facts as part of the creative process. Government needs information at every level to formulate plans, refine decision making, and help government workers to anticipate and resolve problems. .... It is clear that library and information needs are felt at all levels of society, regardless of an individual's location, social condition, or level or intellectual achievement. Although library and information needs are not the same in all parts of the country, and although they vary widely among people by age, ethnic origin, educational achievement, work assignment, geographic location, and many other factors, most people feel some dependence on the availability of accurate and useful information." (2)

Unfortunately, users are rarely directly involved in the initial planning and design. National information systems are usually started only by librarians, archivists, or information specialists. They are the ones who persuade their respective government to initiate such systems, and who have the technical know-how needed to supervise implementation. It is therefore all important that planners strive to anticipate user needs to the greatest extent possible.

Generally speaking, past user studies in developed countries have been confined to narrow groups and well-defined subject areas. For example, studies have been made of the information needs of medical doctors, chemists, engineers, and so forth. However, no accepted methodology currently exists for surveying and projecting user needs across an entire population.

The methodology outlined in this paper is aimed at helping professional planners anticipate user information needs according to the peculiar characteristics of nations in question. For example, in a developing country a national information system must be designed to facilitate improvements in general literacy and education.

The common methods employed for the collection of user data consists of questionnaires, interviews, sampling, market segmentation surveys, etc. However, these are always used in the context of studying an existing user group. The planning of a national information system to serve an entire population requires a different approach. Not only must the methodology be sensitive to the literacy rate and educational growth patterns of the country but it must also take into account other factors such as national priorities, population projections, cultural history, demography, economic planning, and the rate at which the country intends to reach prescribed national objectives. National information system planning therefore requires prior knowledge of population statistics, of government goals and objectives, of educational development plans, of economic growth. Sociometric data of this kind is essential to national information system planning. It provides a solid foundation on which to build the system and a framework for setting priorities, making decisions, and taking action.

The planner must have verifiable facts and figures in order to manage the planning process. These data are essential to him for two reasons: they enable him to weigh alternative courses of action logically and they provide a valid basis on which to justify recommendations to the government.

What are some of the fundamental decisions the planner will be called upon to make? Basically, they concern budget, facilities, and organisation. The planner must recommend and defend a short- and a long-range financial level of government support for the national information system. He must decide whether to build on existing facilities and how, or whether to recommend new ones and, if so, how many. He must determine the extent to which the system will be centrally managed. Should the libraries and documentation centres of government ministries, for example, be supervised by a central

National Information System authority? Or, should they be managed by their respective Ministers?

Other concerns are *priorities*, *geographic distribution*, and *education*. The planner must ascertain the relative importance of supporting libraries, archives, and documentation centres by type of function. For example, what priority rankings should govern support to educational libraries, documentation centres, industrial libraries, regional archives? And what priorities should govern the development of libraries as opposed to archives or documentation centres?

The planner must also decide the issue of *regional self-sufficiency*. Should equivalent information facilities exist in each region or should the nation promote the networking concept? And he must settle on a programme of *information science education* which will ensure a steady flow of trained people who can operate the national information system effectively. He must develop *public education programmes* for increasing the utilisation of libraries, archives, and documentation centres by users.

Finally, questions of *government support*, *standards*, *centralised* services, and *national objectives* must be considered. The planner must decide the means by which the government gives supportive treatment to the development of its national information system. For example, should the government provide special mailing privileges for the system? Should it waive customs regulations for the importation of books? Should it subsidise telecommunications and computer costs for information networking? Planners must also establish principles regarding observation of and adherence to cataloging, computer formats, and other functional and technical standards to ensure the evolution of a uniform national information system. Provision for support services (such as computer services, catalogue production services, audio-visual services, etc.) is necessary to provide centrally for the entire system and to achieve economies of scale.

Above all, national objectives need consideration to synchronise information system development with them. If, for example, the creation of a strong electronics industry is a major national objective, then the information system to support it should receive an equivalent priority.

The following table A1.1 contains examples of typical sociometric variables which can affect planning for a nation's information system. These variables and their corresponding planning implications are intended to be representative rather than comprehensive. But they do indicate the kinds of questions which must be answered from the outset to help the planner determine which subsets of a national population and a national economy demand special attention in the evolution of a national information system.

The sociometric variables most relevant to the work of the national information system planner are those available to him from existing census, economic, and educational report literature in his country. Primary sociometric data of this kind, however, is not present in every country. When this is the case, the planner obtains the best data he can by interviewing other government planners, holding group meetings with prospective users, and maintaining liaison with spokesmen for various population subsets. Based on his research, in either case, the planner's first step is to produce a general document which identifies these variables and describes their probable effects on national information system planning.

TYPICAL SOCIOMETRIC VARIABLES	EXAMPLES OF PLANNING IMPLICATIONS
POPULATION How many people are there in the country? What is their distribution by age? By skill? By level of education? What proportion are results? Young adults? Children? Where are they located? What proportion is concentrated in big cities? What is the projected rate of growth of the population? What proportion of the working force is professional? What proportion is clerical and technical? Which professions are most active in the country? Which occupations are most active?	Knowing about population distribution and having demographic information about the country enables the planner to anticipate the need for new or expanded facilities and to determine their most useful location. It also serves as an indicator of the kinds of information which may need special NATIS support.
LITERACY RATE What is the literacy rate? At what rate is the literacy rate expected to increase? What is the relationship between age and reading level?	The planner can greatly assist the nation's drive for increased literacy by ensuring that local schools and libraries are adequately stocked with suitable materials for teaching people to read. Also, the literacy rate should be a major factor in determining the rate of library and documentation centre development in the country as a whole.
INCOME What is the per capita income? Which subsets of the population command the highest salaries?	Information about per capita income can help define communities whose population requires materials of a more advanced nature.

Table A1.1

Thus, in summary, the planner's methodology proceeds as follows:

Step 1. He familiarises himself in detail with overall national plans and objectives for the country as a whole.

Step 2. He analyses the impact which overall national plans will have on the current information infrastructure and on his emerging NATIS plan.

Step 3. He identifies the critical decision issues which must be addressed in the evolution of a national information system.

Step 4. He locates, assembles, and organises the sociometric data that will support his judgements on critical decision issues.

Step 5. He identifies particular subsets of the population which will require special attention in his development plans. (The number and types of population subsets cannot be determined automatically and they are not fixed. Also, they will vary from country to country.) The identification of subsets is a conceptulisation for the planner's convenience and in each instance he must determine how they will be defined and how many there will be.

Step 6. He takes an inventory of existing library, archives and documentation facilities and staff in the country in order to measure the magnitude and nature of the new resources required to meet his objectives.

Step 7. He prepares a document which sets forth the goals and objectives, the priorities, the requirements, and the justification for a plan that can be implemented in progressive phases.

Step 5 above is the one that is mainly concerned with identifying particular user groups within the population.

This is considered in more detail in section A2.

A2. The identification of groups of users

The key to successful information system design is the correct identification of user groups. A library or information analysis centre can only be successful if it has identified its user needs adequately and if it has adequately defined the groups which it is not intended to serve.

The first and obvious group are the users of existing libraries and information services. It is comparatively easy to assess their existing demands on the service, the degree to which these demands are met, and the users' reactions to the existing service.

The characteristics of existing users of a service can be compared with data on potential users: that is, persons who might have been expected to use the information service. By appropriate means it may be determined whether their reasons for not using the service are personal to themselves, or are due to imperfections or ineffeciencies in the information service which can be remedied. It should be recognised of course, that there are many ways of obtaining and using information: much information is transmitted informally, so that the monitoring of use of formal systems such as libraries can only give a partial picture of need.

A third group of people are those who can be identified as probably requiring information of one kind or another, but who are not provided for by an existing library service.

It is conventional to group users according to some major characteristic. The particular characteristic chosen will depend on local circumstances. It might be the subject field with which they are concerned, the organisation for which they work, or their function.

It may be decided that the needs of persons working in health care should be investigated. Usually, this group consists of qualified medical personnel, persons undergoing training, and untrained auxiliaries. Some will be working in hospitals or clinics with others of their profession, others may be working alone in remote locations. It is unlikely that a single library/information service will be appropriate for all their needs and some subdivision will be necessary. It might be decided that all persons working in a hospital are best served by a single library, regardless of their function or degree of training. On the other hand, doctors working in the field would require a different kind of service, and a survey of their needs could not reasonably be encompassed within a survey of the needs of hospital personnel.

As an example of the variety of needs which may be generated by persons with different functions within the same subject discipline, we can consider agriculture.

Function	Information need	Type of document used
Policy maker	Evaluative	Digest
Administrator	Prescriptive	Rulebook
Researcher	Innovative	Research report
Teacher	Comparative	Review
Student	Instructive	Textbook
Practitioner	Practical	Manual

Fig. A2.1 Functions, information needs & documents

Figure A2.1 gives a general description with single examples of the types of need and types of document used by various persons. The policy maker, being concerned with allocation of resources, will require digests of statistics - production, consumption, and so on. What crops should be grown, what exported and imported, will depend on accurate and up-to-date knowledge of weather conditions, world markets, crop yields and prices. The administrator is responsible for converting the policy maker's decisions into procedures. He has to arrange the purchase of grain from another country, or the importation and distribution of fertilisers, and so on. In agricultural terms he must know which areas require nitrates and which lime; which produce surpluses of cereal crops and which livestock. He may be responsible for the collection of data and for the preparation of the digests which the policy makers use.

The researcher is responsible for investigating what kinds of agriculture are appropriate to the various local circumstances. To this end he requires reports of research carried out in other locations and detailed knowledge of his own country to enable him to apply the expertise gleaned from other locations to his own. He may undertake experminents in crop raising, and the reports of his research in turn are of use to administrators, teachers and practitioners.

The teacher has wide information needs; he must draw on the results of research and practice from a wide area of knowledge if his students are to be properly prepared. The need to cover such a wide area means that the review article, journal or book is a great help, enabling him to keep up to date in his profession. Some teachers distil their knowledge to produce textbooks for the benefit of a wider audience than their own immediate students.

The student has two major information sources: his teacher, and the textbooks recommended by his teacher.

The practitioner relies to a great extent on the knowledge he gained as a student, and on his accumulated experience. When introducing new methods of crop raising or animal management he needs manuals to guide him in the right way of doing things, to reinforce any demonstration or instruction he may have received from liaison officers.

Having identified the groups of information users of interest to the national planners, their needs for information must be assessed in more detail. Before undertaking any large scale surveys, it will be necessary to set priorities in accordance with the national plan and to make some realistic assessments of the resources which are likely to be available to implement changes and additions to existing information facilities. It will then be possible to determine what is necessary to collect in the way of data, and to organise surveys accordingly. The organisation of surveys is discussed further in section A3.

We would stress that studies of users in themselves do not, and can not, give the planner all the data required to devise a national information system. To quote a report from the United States National Academy of Sciences:

> "Users of scientific and technical information are slow to change their habits of information use, usually learned in their formative years. As a consequence, there are strong tendencies toward 'in a rut' behaviour and toward apathetic responses to new and more effective services... The lack of economic balance that results from the tradional pattern of conducting the work of science and technology together with apathy and great resistance to change under the usual test of the marketplace is an unsufficient guide to the need and value of information services.." (3)

Part of the task of the decision maker is to assess user needs discovered by surveys and other means against various criteria such as relevance, timeliness, etc. This is further discussed in section A5.

A3. The Organisation of Surveys

A3.1 Introduction

In general, we do not think it is feasible to undertake a single, all-embracing survey of national information needs. It possible to undertake a number of surveys of subsets of the total population, and using this approach a picture of the overall needs can gradually be accumulated. It will be necessary to decide priorities for the various surveys; these priorities can only be decided by the national planners by reference to the national plans for economic and cultural development, and by reference to the resources available for the provision of information services. If for example the national plan gives high priority to agricultural development, health services and the increase in literacy, and low priority to heavy industry, then surveys of information needs must reflect these priorities. Similarly, the data gathered in the surveys must relate to services which it will be possible to improve or introduce within a few years at most from the date of the survey.

The choice of methods of data collection must also be appropriate both to the data to be collected and to the people whose needs are being surveyed. The information needs of peasant farmers may be of great importance to agricultural development, but it would be inappropriate to send a detailed questionnaire to a largely illiterate group. A group discussion combined with expert observation would be a more sensible approach to adopt in this situation.

A3.2 Planning Surveys

The planning of any survey involves 3 types of problems:-

1. Technical
2. Organisational
3. Methodological

The problems are rarely decided in isolation but in combination with each other. The number of interviewers recruited, for instance, will depend upon the finance available, whether there are staff already available which could be used, whether there is a market research agency in existence which could undertake the interviewing, and available provision for training.

The methodological problems cover such topics as the population coverage aimed at, the type of sample design, which data collection methods to use, how to analyse the data and interpret the results and so on. None of the questions are decided in isolation or on a purely technical level as decisions on all these problems have to be taken in the light of what is practically feasible as well as what is desirable from a theoretical viewpoint. A random sample design may have to be abandoned in favour of a quota sample because no adequate sampling frame exists or financial or staffing considerations may limit the sample size.

In the preparatory stages, the researcher must not neglect desk research; all too often a survey is used as a substitute for desk research whereas the collection of data and its analysis (the survey proper) is part of the research process which has a number of important stages which must be gone through before the survey itself is designed.

A3.3 The Research Process

The stages involved in a research project will be dealt with generally in this section. Data collection methods are treated in more detail in section A4.

Summary of Basic Decisions

1. Defining the research objectives.
2. Establishing the Staff Structure
    - (a) setting up the research office
    - (b) obtaining space and materials
    - (c) recruiting office personnel
    - (d) setting up the organisational structure.
3. Selecting the Data-collection techniques.
4. Preparing the Timetable.
5. Design the Questionnaire (or other collection instrument).
6. Preparing other Documents
    - (a) interviewers instructions
    - (b) coding guides
    - (c) control, expense, time sheets, etc.
7. Set up analysis stage
    - (a) establish contacts with statisticians and other experts
    - (b) decide on type of analytical equipment
    - (c) set-up programs and computing procedures.
8. The Sample
    - (a) select all stages prior to final stage
    - (b) assemble sampling frame (mapping if necessary)
    - (c) select final stage sample.
9. Recruit Field-staff, coders, etc.
    - (a) recruit supervisors and interviewers
    - (b) train fieldstaff (if necessary).
10. Pilot survey

11. Finalise all documents and Prepare Interviewers Assignments.
12. Brief the Field staff.
13. Fieldwork.
14. Editing and Coding.
15. Data-preparation.
16. Create data-files.
17. Tabulation and analysis.
18. Report writing.
19. Publication of results.

Not all of these stages are necessary in all types of survey work.

A3.4 Formulation of the Research Objectives

The first task involves elaborating the first vague research ideas into a precise and definite plan of objectives to be researched. This is the stage where the value of 'desk-research' cannot be over-emphasised and includes a literature search to seek out those papers and previous research reports, if any, which have touched on the research problem. Some of the papers and books consulted will be technical and methodological in that they are not concerned with the subject-matter of the research project but with how to collect and analyse the required data.

As well as reading, much valuable advice can be obtained from talking with experts, both with those familiar with the subject-matter of the research and those experienced in conducting research projects.

A3.5 Establishing the staff structure

Each country will need to develop its own survey organisation adapted to its own conditions and purposes. In some, much of the organisation will exist, in others, existing organisations can be shifted to the purposes at hand. The essential point is that it is up to the survey director to ensure that the organisation and staff are set-up when needed for the survey.

Figure A3.1 is an example of a permanent survey organisation which might exist in a country where surveys are undertaken regularly.

Survey organisation - an example

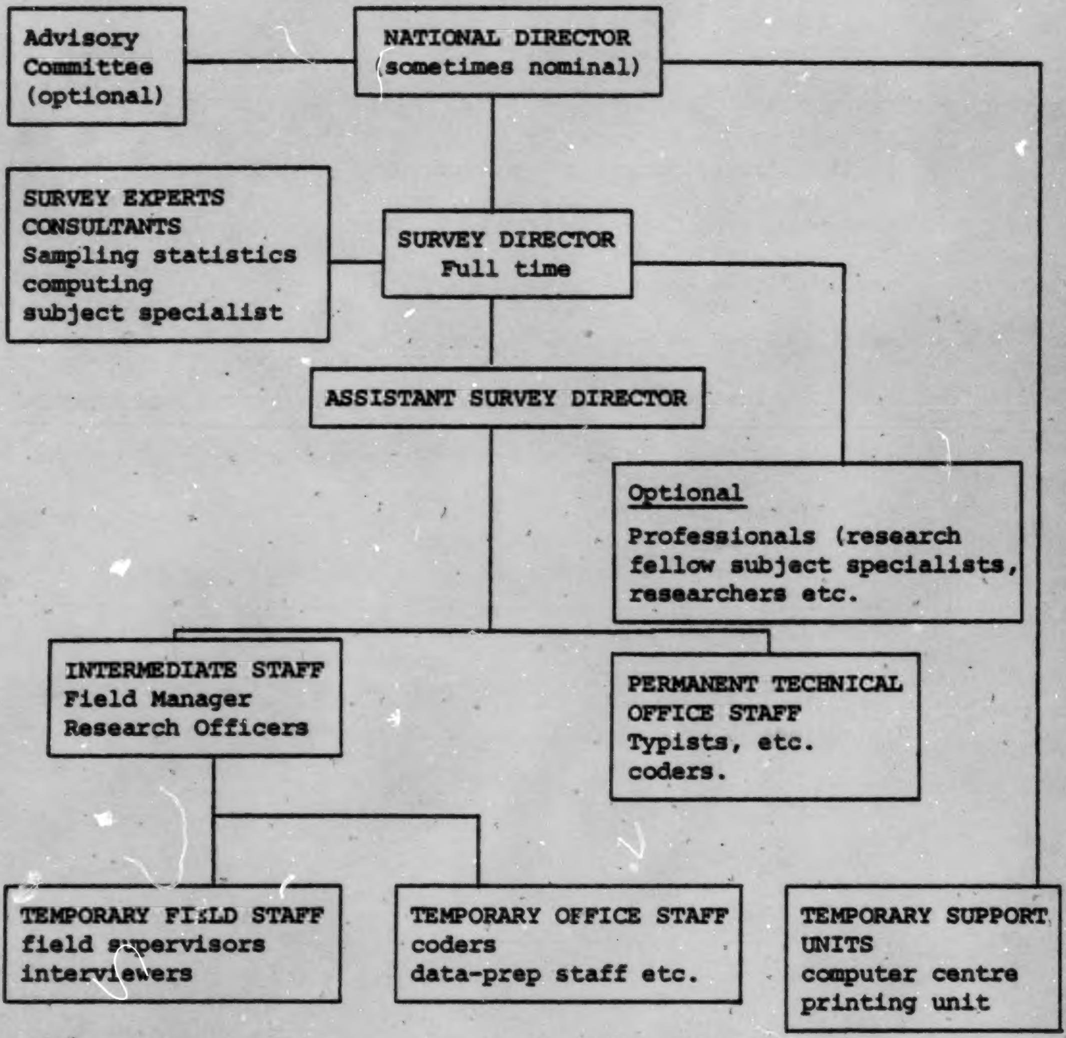
Advisory Committee (optional)
NATIONAL DIRECTOR (sometimes nominal)
SURVEY EXPERTS CONSULTANTS Sampling statistics computing subject specialist
SURVEY DIRECTOR Full time
ASSISTANT SURVEY DIRECTOR
Optional
Professionals (research fellow subject specialists, researchers etc.
INTERMEDIATE STAFF Field Manager Research Officers
PERMANENT TECHNICAL OFFICE STAFF Typists, etc. coders.
TEMPORARY FIELD STAFF field supervisors interviewers
TEMPORARY OFFICE STAFF coders data-prep staff etc.
TEMPORARY SUPPORT UNITS computer centre printing unit

Fig.A3.1

It would not be feasible for this organisation to be maintained for the purpose only of conducting surveys of information needs. It does show the types of expertise necessary for conducting surveys: in small scale work, direction, interviewing, coding and analysis might all be undertaken by the same persons. A national survey office which undertakes censuses of population could organise surveys of information needs as part of a continuing programme.

It should be stressed that good surveys are normally the result of using experienced personnel. To this end, if foreign advisers are employed to conduct surveys of information needs, they should be required to train members of the employing country's population in survey techniques.

A3.6 Selecting the Data Collection Methods

Basically, the data collection technique is selected by specifying the type of data needed to answer the problem posed by the research, considering the available methods which might provide these data and choosing the most appropriate one. The criteria include not only the needs of the research but the cost in time and money of the different methods, the demands each method makes upon the subjects of the research, and the skills and knowledge needed to analyse the data.

For example, in order to study the library users most effectively might involve the use of personal interviews in the respondent's own homes but finance and cost considerations might restrict the research team to use the interviewing method on library users, defining a user as someone who enters the library, or even to an analysis of loan statistics only, (the latter method avoids all the organisational and financial problems of fieldwork).

The choice should be made in terms of the research question, the resources and facilites available and the demands of the different techniques.

It may be necessary to use combinations of methods. For example the face to face interview may be combined with the diary technique.

Data collection methods are treated in more detail in section A4.

A3.7 Preparing the Timetable

Some broad aspects of the timetable will already have been considered at the initial stages of the research project and certainly when choosing the data collection methods as one of the criteria for choosing the latter might be the time constraints on the project. On the other hand, if the techniques are chosen for criteria other than time then once selected, they will enable the research director to work out the timetable in detail.

Preliminary interviews	2 weeks
Design of questionnaire	2 weeks
Test questionnaire	4 weeks
Revision and retest of questionnaire	4 weeks
Selection of sample	1 week
Distribution of questionnaire	1 week
(Delay while questionnaires return during which reminders are sent out at 3 week intervals	9 weeks)
Preliminary analysis	2 weeks
Coding of questionnaires	4 weeks
Punching of data on cards	1 week
Analysis of data on card-sorter	2 weeks

Writing of report including supplementary analyses	6 weeks

Fig. A3.2: Sample timetable for postal survey

(Assumes efficient postal service, printing facilities, card-sorting equipment and a sample size of approximately 1000.)

As can be seen, the time of some of the phases, such as fieldwork coding and editing, depend upon the number of questionnaires, their length, the ratio of closed to open-ended questions and the number of staff available. Thus the timetable of each project is specific to it but as experience is built up, so more realistic forecasts can be made.

A3.8 Designing and Testing the Questionnaire

This is a phase which should not be hurried as many well thought out research projects have been spoiled by bad questionnaires. The design of questionnaires is an art rather than a science and one which comes with experience. It may be possible to use all or part of other people's questionnaires. This will enable comparisons to be made with other results but careful attention should be paid to the definitions used so that unappropriate questions are not asked of the wrong populations. It is unlikely that a general set of questionnaires could be designed that is applicable to all user studies projects as each project is specific to a time and place though it should be possible to have modules of 'skeleton' questionnaires so that the appropriate modules can be selected, put together and adapted to the particular situation and population.

Extensive pretesting of the questionnaire should be carried out to test particular questions, wording and the flow of the questionnaire. It is not unusual to have a number of pretests in order to try out particular questions.

In the initial general discussion of the questionnaire - what questions to ask, how to word them, how people phrase certain concepts, etc., it is extremely useful to have a Group Discussion where a number of respondents are brought together and the subject of the project is discussed generally by the group. One of the research team acts as the discussion leader whose task is to introduce certain topics, but to be passive in that he does not 'lecture' the group but encourages all the members to discuss the topics generally. From the tape recorded discussion valuable information can be gleaned on which topics are important, how people think about them and phrase them.

A3.9 Preparing the Other Documents

At the same time as the questionnaires are being designed and printed, the other necessary documents can be produced, such as worksheets contract sheets, expense forms, coding and punching forms.

Once the questionnaires have been finalised, the interviewers' instructions (if the interviewers are to be used), and the coding guide can be drafted and published.

A3.10 Setting up the Analysis Stage

Once the questionnaires have been finalised, work can commence on setting up the analysis stage. Contacts can be made with statistical experts, if there is a large scale survey in train; decisions will be taken on whether to use manual analysis, or to use some form of equipment.

A3.11 The Sample

(a) Method

Defining the population in the formulation stage may have elicited the fact that it is thinly scattered geographically so that the most economical way to question them is by sending questionnaires to them rather than interviewers. On the other hand, the objective may be to obtain information on a large number of complex subjects so that the only feasible method would be to use interviewers with a detailed questionnaire.

(b) Identifying the Population and Invited Sample

The population to be studied must be defined clearly and precisely. This will mean setting out its economic and social characteristics (occupation by qualification or place of work, sex, marital status, educational level, etc.) and its geographical boundaries.

The next step is to decide whether to survey the whole of the required population group or only a proportion; if the latter, what proportion (or sample) and how the respondents are to be selected.

(c) Sample Design

The type of sample to be used has to be determined, the sampling unit to be used (city, residential blocks, firms, farming areas, etc.), what sampling frame is available (that is, as list of the population members of a map) and the problems caused by using it for a particular research design.

Decisions have to be made to counter any obvious discrepancies in the sampling frame, for instance, what measures should be taken to counter the fact that it is out of date or inaccurate, or that large sections of the desired population do not appear on it.

A3.12 Recruitment

The fieldstaff, supervisors and coders should be recruited and they should be warned when they will be needed, rates of pay, type of interviews, areas, etc.

It may be necessary to train the field staff especially if they are members of the parent organisation. Decisions should already have been made on whether to use full-time/part-time staff and to pay by time or piece rates.

A3.13 Pilot Studies

The process of questionnaire design is helped by undertaking test interviews termed 'pre-tests', in order to test out the wording and order of the questions themselves. Very often a number of pre-tests are necessary before the questionnaire is finalised; it is not always easy for the researcher to 'think' himself into the mind of the respondent and it often happens that the researcher poses a question in 'too educated' a manner, using words and phrases that may be unknown or ambiguous to the respondents.

The pilot study itself is the complete survey in miniature - a run through from beginning to end in order to try out the data collection methods, the fieldwork stages and the data-analysis stages.

Wherever possible a pilot study should be done, though for some situations where time and money is at a premium, pilots are dispersed with; this should only be done where the techniques to be used are standard and familiar to the researcher. But if the methods are unfamiliar, and/or if the data-collection instrument is new (whether newly constructed or new to the researcher) and/or it has not been used before on a similar population to that to be surveyed a pilot study is necessary.

A3.14 Editing and Coding

After the main field work is complete, the data analysis begins. Editing involves the verification of answers to all the questions and to certain combinations of questions, coding of "open-ended" questions, and the checking of all steps in the questionnaire. Editing takes place before coding so that fewer problems arise during the coding and checking stages. Editing should start immediately the questionnaires start arriving in the office as this will enable it to be done quicker and also enable queries to be referred back. Some errors which may arise are :-

wrong respondent interviewed

questionnaire incomplete

Wherever possible editing should be done on a 100% basis. It is an extremely boring task but is vitally important if the value of the data is not to suffer.

Coding involves assigning codes to open-ended questions (or parts of questions) and the transferring of all codes from the questionnaire to coding boxes.

A4. Methods of Data Collection

A4.1 Introduction

This section is not a complete handbook of methods of data collection; here we give only descriptions of the various methods, and discuss the strengths and weaknesses of each. We make reference to other publications for further guidance.

User Studies investigations can be regarded as a sub-group of the wider research discipline - social science - in that it, like the many constituent parts of the social sciences, it concerned with investigating people, and their activities, attitudes, opinions, values and inter-actions.

Thus the units of enquiry are people, whether as individuals, as members of a team or of larger groupings such as institutions, firms and companies. It should be pointed out that where we talk of finding out about individuals we are not concerned with an individual as a sole object of enquiry, as is a psychiatrist, but as the unit of aggregation, a member of a group with characteristics in common.

Basically, in spite of the many techniques named in the literature, there are only 3 main methods of obtaining data about a group of people. These are :-

1. Documentary sources
2. Observation
3. Questioning

While this grouping is a useful classification it should not be thought that the categories are mutually-exclusive. A combination of methods is often appropriate to make use of their different strenghts, the advantage of one method making up for the disadvantage of another and, indeed, a more comprehensive picture can often be gained by using one method in conjunction with another. For example, in interviewing surveys, as interviewer can, and indeed, should record observational details such as appearance of the respondent, state of the home, the locale, etc., as well as record answers to the posed questions.

A4.2 Documentary sources

In the first section, Analysis of users needs, we stressed the need for the investigator to make full use of existing sociometric data such as census returns before undertaking research on information needs. Similarly, the investigator should commence research by examining existing records of use of library and information services. The amount of data which can be gleaned from library records is often immense.(13)

Many libraries keep records of the books which users borrow from them. Analysis of these borrowing records will reveal the numbers of books borrowed by each category of user, the numbers of books borrowed in each subject, the length of time for which a book was kept by a borrower and various other facts. The investigator will be able to compute simple ratios, such as the proportion of books owned by the library which have been borrowed, the proportion of books in each subject which are on loan at any time, and so on. These figures may show that there are shortages of books in some subjects as compared with others and further investigation may lead to changes in the acquisitions policy of the library to alleviate the shortage.

A second documentary source within the library is the record of inter-library loan transactions. Analysis of this record may show frequent requests for recent issues of a particular journal which the library might consider subscribing to; but we would stress once more that care is needed in the interpretation of documentary data of this kind. It may be more economical to continue to borrow a journal on inter-library loan than to subscribe to it. It may be necessary to question the users of the journal to discover the urgency with which they require access to the journal - whether it is essential to their work now, or whether it is required "sometime within the next few months". Recent research in Britain has shown that many inter-library loan requests made by research workers are not really urgent. (4) The same may not be true for other types of user - it is possible that field liaison officers in the agricultural service may need items with great urgency.

A third documentary source of evidence of library use is that provided by what is now generally called a "failure survey". In brief, users are asked to record details of the books they looked for in the library but failed to find. The investigators then determine the reasons for this failure. The analysis of these results may lead to changes in library policy or procedure. This type of investigation is described in detail elsewhere. (5,6)

A4.3 Diaries

The diary method of gathering data about user access to information is among the oldest of methods, perhaps because it is so straightforward. Systematic self-observation is capable of yielding fine results. However, in practice the method is difficult to extend to a large number of users, none of whom is likely to be as deeply interested in observing and recording his own behaviour as is the person planning the national information system.

The essential feature of this method is that respondents keep a diary, whether written or tape-recorded. The recorded items are those units, events which are the object of the study. If the study is investigating needs then every time the respondent requires information, he records the fact, the source of the information used if any, the applicability of the information found or used to his needs, if the need cannot be fulfilled, the alternative actions taken and so on.

The problems with the diary method include poor response; enthusiasm for filling in diaries quickly wanes and many respondents stop. Even where they continue to do so they may fill them in at one period during a day such as just before finishing work, and not each time an information need is encountered. The quality of the data may diminish over time as entries become shorter.

Still a further criticism of the diary method is the possibility of acquiring a biased user population. Working with a subset of users who volunteer to observe themselves (which tends to leave out, for example, busy people) is not equivalent to working with a randomly chosen sample.

The diary method, given these limitations, does give the investigator a feel for the information problems of people in various fields. It can of course only be used with literate members of the population. (7)

A4.4 Questioning

Questioning and observational techniques differ from the diary in that a second person is partially or wholly involved in the role of the observer.

The questioning method has two main aspects: the schedule of questions to be asked, and the method of asking the questions. We shall deal with each of these in turn.

A4.5 The schedule of questions

The questions posed can be either open-ended or closed. In the former, the question allows the respondent to answer in his own words, e.g.

Question : What is your opinion of microfiche?

Answer : ________________________________

____

In a closed question the answers are predetermined and the respondents' answer must be one of them. e.g.

Question : What is your opinion of microfiche?

Answers :
1. It is a useful way of storing large amounts of data.
2. It is useful for giving access to periodical back-runs which are otherwise unavailable.
3. It hurts my eyes to read it.
4. No opinion.

In general, we can say that the open-ended question is used to obtain attitudes, opinions and facts that we cannot predict. The closed questions are used when we are able to predict the sorts of answers that will be given, and we merely wish to establish the frequency with which the given answers occur. In some surveys, an open ended question is used when the questionnaire is being tested, and the answers received are used to make a closed question in the final version. The questionnaire as a whole can be one of three types: structured, semi-structured or unstructured.

A structured questionnaire consists wholly of closed questions and open ended questions in a rigidly defined order.

In a semi-structured questionnaire, the questions are asked in the same order, but some variation of wording is possible to ensure that the respondent understands the questions. The questions may be closed or open-ended.

In an unstructured questionnaire, there is no list of questions nor a predefined order; there is only a checklist to topics on which opinions are required.

A4.6 Asking the questions

It will be apparent from the above that the method of asking the questions is closely linked with the schedule. Unstructured and semi-structured schedules can only be administered by interviewers, while structured schedules can be given to people to complete themselves, or can be used by interviewers.

Where we have a choice of method, we must take into consideration the degree of literacy of the population, the concentration of the population and the resources available to the investigator. If the investigator wishes to question a literate section of the population who are widely scattered geographically, then he will send schedules of questions to these people and they will complete the schedule and return them. He may do this even when the people to be investigated are not widely scattered.

When the population to be studied is not literate, or is unlikely to complete questionnaires, the interview method must be used.

In general we may summarise the advantages of the self-completed questionnaire as :-

* cheapness
* avoids bias introduced by interviewers
* questions requiring considered answers can be used
* scattered populations can be easily contacted.

The disadvantages include :-

* questions must be simple and easy to understand
* replies to questions cannot usually be checked with the respondent

- there is no evidence of the state of mind of the respondent
- the questionnaire can only be sent to people of a reasonable standard of literacy
- the response rate tends to be low compared with the interview method.

A4.7 Observation

Observation is the classic method of scientific enquiry. The accumulated knowledge of biologists, physicists, botanists, chemists and other natural scientists is built upon the foundation of centuries of systematic observations, much of it in natural rather than the laboratory.

Systematic observation as a technique of observation of people and their actions can play an important part in any investigation provided that the research strategy is carefully thought out. It is not sufficient that the object to be observed is there (e.g. farms and farmers) the method must be :-

- suitable for investigation the problem
- appropriate to the population under study
- reliable
- objective

In situations where the observations are made of an individual respondent, his actions, use of information sources, etc., the method is highly-consuming in terms of time and more importantly, in manpower; a one-to-one correspondence between observer and observed can only be used in small scale, intensive studies and this method is unsuited to the large scale collection of data on information needs.

As an integral part of the questioning process, observation has a very valuable role to play. In addition, observation can be of great value in producing detailed case studies, information which may lead to hypotheses that can be tested by other methods.

The observer must have a prior designed plan of the data required as the potential events and items which could be observed are so vast and often so amorphous that a structured observation guide is necessary - this is a list of items and events on which data is required.

A good recent example of the use of observational techniques in determining information needs will be found in the report by Wilson and Streatfield. (8)

A5. The Evaluation of Data on Information Needs

The methods described in outline in the previous sections can be used to gather a variety of data items on users' information needs. These data must then be evaluated.

A recent book (1) has summarised this aspect rather well for our present purposes:

> If performance (effectiveness) of information facilites is defined as the extent to which these facilities satisfy user demands, the question arises as to how the demand for information can be measured so that information supply can be organised accordingly.
>
> There is a series of dimensions in terms of which user demands are to be described. They also correspond to the aspects in view of which the performance of information systems and services is evaluated. Some examples (ref. 82, 85, 86) may show that it is possible to determine the information demand under aspects such as (here related to facilites for the documentation of literature and to libraries):
>
> - relevance to field on which information should be given (e.g. subject field, scientific discipline, scope of interest spectra, need profiles, problem area, etc.)
> - appropriateness of kinds (e.g. retrospective searching services, SDI-services, abstracting services, bibliographies, lending, copy supply, data or literature reference procurement)
> - appropriateness of the forms of service (e.g. bibliographies as simple lists of titles, or with descriptors or with abstracts, etc.; excerpts of documents or complete texts, computer printouts or microfiches or screen displays...)
> - adequacy of the quantity of the desired kinds of services (e.g. estimated number of requests for retrospective searches per unit of time, estimated number of subscribers to an SDI or abstracting service, desired quantity of such services (desired average number of references), e.g., the number of lendings per unit of time, amount of bibliographic information desired, of reproductions, etc. per unit of time, estimated number of people visiting the library per unit of time...)
> - desired timeliness of information (e.g. age of references, speed of updating of the library stock...)

- desired speed of information transfer (e.g. the admissible or desired response time for retrospective searches, the frequency of supply in SDI or abstracting services... : the maximum permissible waiting time of library users, the minimum permissible lending time per book, the maximum search time for references in catalogues...)

- adequacy of an index of selectivity of the information (e.g. relevance, recall ratios etc. which the users regard as admissible)

- adequacy of an index of completeness of transmitted information (e.g. the extent to which all information contained in a subject field and relevant for the users is stored in an information facility - the so-called 'coverage')

- ease of using or the "user friendliness" (ref.18) of the systems (e.g. revealed by the expenditure of time and money which the users must put up with if they want to avail themselves of the services of the information facilities: the so-called 'user effort', the user comfort...)

The list of such aspects (which assume different relative weights of importance in given cases) under which the information demand is to be charactersied and evaluated can be extended. By recording user needs in such a detailed way, quantitative indicators are gained for the performance (planning, designing, operation) of information facilities (ref.86). Only in such a way can detailed indications about specific user needs be obtained. This information should support the formation of judgments about existing or planned information facilities, in response to questions like "Which and how many references, data or documents are to be stored?", "How extensive and how structured should the 'vocabulary' be (classifications, thesauri)?", "How large should the indexing depth and indexing time per document be?", "Of which kind and form should the services be?", "How should a feedback relationship be organised with the users?", "Which storage and retrieval techniques should be applied?". "How much personnel with which qualifications is needed?", "How much should the systems cost?", etc., etc.

Only by defining the overall performance of services and the organisation and structure of the information systems as a function of the performances under the various aspects, thus balancing the pros and cons of alternative designs, can the efficiency of such systems be measured and systematically improved.

The conclusions of the book are also relevant:

> What a good information system is, what relevant information is, how efficient a solution of a problem is, what policy to pursue in order to improve the infrastructure of a country's information supply - all these questions have no definitive answer, objectively based on professional expertise or detached analysis. The answer depends upon one's view of the problem, one's interests and intentions, the standpoint one assumes, and there is no criterion as to which of the various views is the right one. Instead, there exists the principle of the "symmetry of ignorance", according to which nobody can know who knows better. In this situation the planning of information systems becomes a process of arguing and attempts to convince rather than one of isolated measuring and computation.
>
> It is a central task of future user research to stimulate and to enhance these processes of argumentation about design and organisation of information systems which consider their users as their partners.

This inevitably leads to the conclusion that the best way of defining users' needs is to establish a new library/information system with a group of users willing to use and to operate the system under real conditions. The use made of the system and the users' opinions would then be monitored using the methods outlined in previous sections of this manual.

There are some good examples of this kind of experimental approach in the published literature. (9,10,11,12)

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B.1 INTRODUCTION

The need to relate surveys of information needs and use to a national plan and to the existing system of provision has already been stressed in Part A of the Guidelines. Part B will go into more detail of the techniques of data collection and organisation.

The plan of the work is as follows. In Chapter B2 we describe the various methods of data collection available to the researcher: the analysis of records of library use, interviewing of information users, diary keeping, and so on. Examples are included of the use of each technique.

In chapter B3 we discuss the planning and administration of surveys. This is an important section, since the data collection technique chosen will have many implications for the administration of surveys. In some cases, the lack of resources will restrict the choice of techniques and this in turn will restrict the nature of the data that can be collected, and thus the usefulness of the data collected.

In chapter B4, we discuss sampling - that is, the method by which we decide who is to take part in the survey, and the problems of getting people to co-operate in research. Many surveys make use of questionnaires, and the design of these is described in chapter B.5. Examples are given, and topics such as layout and question-wording are discussed.

Chapter B.6 is concerned with the analysis of data; various forms of presentation are described. Chapter B.7 completes this part with recommendations on the form of reports.

B.2 METHODS OF DATA COLLECTION

B2.1 In this chapter we describe methods of collecting data on information needs and use. The first part deals with the methods which use records that have been made for some other purpose (for example, records of books borrowed from a library). The second part deals with methods in which the investigator asks the users directly about their information needs and use. The third part deals with methods in which the user himself records his information needs and uses. Finally, we touch lightly on methods of observation. The section on interviewing is developed in most detail since this technique seems most suited to the needs of large scale surveys in developing countries.

B2.2 Documentary Sources

In the first chapter of part A, Analysis of users needs, we stressed the need for the investigator to make full use of existing sociometric data such as census returns before undertaking research on information needs. Similarly, the investigator should commence research by examining existing records of use of library and information services. The amount of data which can be gleaned from library records is often immense.

Many libraries keep records of the books which users borrow from them; figure B2.1 shows a typical form which borrowers must complete in order to borrow a book.

Class No.	Date Borrowed
Author	Borrower's Name (in capitals)
Series	
Title and Volume Number	
Department	Signature ....

Fig. B2.1: Typical Library Borrowing Form

This form is typical of those found in university libraries, and other similar institutions. Undergraduate students, postgraduate students and members of faculty may each fill in different forms so that borrowing records of different categories of user may be easily separated. Analysis of these borrowing records will reveal the numbers of books borrowed by each category of user, the numbers of books borrowed in each subject, the length of time for which a book was kept by a borrower and various other facts. The investigator will be able to compute simple ratios, such as the proportion of books owned by the library which have been borrowed, the proportion of books in each subject which are on loan at any time, and so on. These figures may show that there are shortages of books in some subjects as compared with others and further investigation may lead to changes in the acquisitions policy of the library to alleviate the shortage.

A second documentary source within the library is the record of inter-library loan transactions. Analysis of this record may show frequent requests for recent issues of a particular journal which the library might consider subscribing to; but we would stress once more that care is needed in the interpretation of documentary data of this kind. It may be more economical to continue to borrow a journal on inter-library loan than to subscribe to it. It may be necessary to question the users of the journal to discover the urgency with which they require access to the journal - whether it is essential to their work now, or whether it is required "sometime whithin the next few months". Recent research in Britain has shown that many interlibrary loan requests made by research workers are not really urgent (1). The same may not be true for other types of user - it is possible that field liaison officers in the agricultural service may need items with great urgency.

A third documentary source of evidence of library use is that provided by what is now generally called a "failure survey". In brief, users are asked to record details of the books they looked for in the library but failed to find. The investigators then determine the reasons for this failure. The analysis of these results may lead to changes in library policy or procedure. This type of investigation is described in detail elsewhere (2, 3). An example of the type of form used in these investigations is shown in figure B2.2.

THIS FORM IS PART OF A LIBRARY SURVEY

The Librarian would very much appreciate your help in carrying out a survey of monographs used within the library.

A. IF YOU HAVE FOUND THIS VOLUME OF USE TO YOUR STUDIES OR RESEARCH please place this form in the RED FOLDER located at the end of the stack.

B. IF YOU HAVE CONSULTED THIS MONOGRAPH BUT HAVE NOT FOUND IT OF USE TO YOUR STUDIES OR RESEARCH please place this form in the BLUE FOLDER located at the end of the stack.

LIBRARY SURVEY

Please follow the simple instructions carefully.

MONOGRAPH REFERENCE NUMBER:

5/132

Fig. B2.2 Failure Survey Form

Citation Studies

One possible source of data lies in the references to literature included in papers written by scientists and others. Analysis of citations is a well established technique, although the results must be interpreted with caution. A typical example of this type of study is that by Mitra (4).

B2.3 Interviewing

In this method, the investigator asks users directly about their information needs and uses. The interviews may be with individuals, or with groups. We will discuss group interviews later (section B2.3.5).

There are three degrees of formality possible when interviewing: for convenience we call them structured, semi-structured and un-structured.

Structured interviews: the interviewer asks each user the same questions, in the same order, using the same words. Most surveys of library and information use can probably by done in this way.

Semi-structured interviews: the interviewer has a list of questions, and he uses the list to guide a conversation on the general subject under investigation. The interviewer is free to use words which the individual respondent will understand, while guiding the conversation on pre-determined lines.

Unstructured interviews: the interviewer does not attempt to ask direct questions, but encourages the individual respondent to talk around the subject under investigation. For some investigations there is no substitute for the free expression of opinion obtained in this way. It would not be practical to use this method for large-scale surveys.

B2.3.1 The Fundamentals of Interviewing

A survey interview is a pseudo-conversation between the interviewer on the one hand who poses questions and the respondent on the other who answers the questions or not as the case may be. Whether the respondent answers the questions depends upon three broad condepts.

1. The concept of cognition or understanding by the respondent of what is required of him. The respondent must decide what is the relevant information with which to answer the question having first understood the question. It is the job of the interviewer to 'teach' the respondent his role and to make sure that the respondent understands the question and to guide the respondent in his answers by probing or rewording questions if the respondent appears to be wandering from the point.

2. The accessibility of the required information to the respondent. The respondent may be unable to recall the answer because of faulty memory, the stress of the interview situation, lack of knowledge of the particular question-subject; or he may not think of things in the way the question was framed. These problems may arise if the pilot studies have been incomplete in some way, or if the interviewer has not explained the subject adequately to the respondent.
3. The motivation on the part of the respondent to answer the questions accurately or indeed to answer it at all. This includes his mutual agreement to co-operate and the subsequent decisions to continue with the interview. But it also includes the respondent's motivation to treat the interview seriously and to give accurate answers. It is the interviewer's job to impart this sense of motivation to the respondent, to persuade the respondent that it is important for him to give [illegible] answers and to continually maintain the respondent's motivation.

B2.3.2 The Interviewer's Task

As mentioned above it is the interviewer's task to persuade the respondent to agree to being interviewed and to give serious and accurate answers. The first few minutes are crucial as it is in this period that the respondent agrees or disagrees to be interviewed. The interviewer has to establish 'rapport' with the respondent quickly, and must be trained to do this. Again, as the interview progresses, the interviewer should be alert to any signs that the respondent is becoming tired or bored and should take necessary action to re-establish motivation. The manner in which the interviewer conducts the interview contributes much to the success of the interview.

The interviewer should be business-like, neatly dressed, not self-assertive and ask the questions in an interested yet neutral amnner and not fumble with interview sheets, prompt cards, etc.; in other words appear to be confident and professional.

Before the actual interviews commence, it is the interviewer's task to actually identify and locate the respondent.

With quota samples* the interviewer has to approach individuals and, by asking basic questions, ascertain whether they fit the quota control requirements and then start the interview proper.

With random samples* with pre-selected individuals, the interviewer is left no freedom of choice. Usually the names and addresses, or any other identifying data, are printed on the questionnaire or on an assignment sheet. In the latter case, when the selected individual has been located, the name and address should be written on the questionnaire at the commencement of the interview.

If the unit of enquiry is the household with some selection to be done within the household, the interviewer must list the household members in a specified order (as instructed by the researcher) and then apply a predetermined selection procedure in order to arrive at the person to be interviewed.

With random sampling from maps, the first task of the interviewer might be to list dwellings and then choose a sample of dwellings (and perhaps individuals within a dwelling) by some predetermined selection procedure.

If the sample is of individuals taken from a list which does not give addresses but only the area of residence, the interviewer may have to approach someone who is conversant with the area in order to locate the individual or dwelling (such as the post office, police station, local shop, etc.).

Each interviewer's assignment should be as clustered as much as possible in an area and the actual itinerary left to the interviewer.

The interviewer should be instructed to record the details of each visit - whether a successful interview, respondent dead, out but made appointment, 3rd recall, etc. - and should be instructed how to deal with each type of non-response.

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* See Chapter B.4: Sampling.

B2.3.3 Asking the Questions in a Structured Interview

A structured interview has a standard set of questions which are asked in a uniform manner so that the stimulus to each respondent is standardized; this enables the researcher to aggregate answers and to compare subgroups of the sample.

Therefore, the interviewers must be trained to be efficient in following instructions on how the questionnaire is administered to the respondents. They are expected to ask all the applicable questions, in the order given with no more probing or expansion than is allowed them by the researcher in his briefing and the printed instructions on the questionnaire. They must make no variations in the way that they ask the questions and when they probe they should write (P) alongside the recorded answer.

Example

Interviewer: Which newspapers do you see regularly?
Respondent: The Star, Truth and some others.
Interviewer: PROBE Any (other) daily papers?
Any (other) weekly papers?
Respondent: Ah, yes, the Globe, and the Weekly Review (P)

Attitude and opinion questions are more sensitive to variations in wording, phrasing and emphasis than factual questions and consequently interviewers should be allowed no latitude in rewording the former type and must be warned about asking them in any but a neutral or faintly-friendly tone of voice. Rewording is allowed to a larger extent in the posing of factual questions, but again the tone of voice should be neutral and the interviewer's manner friendly but professional.

The interviewer must be trained to recognize answers that are inadequate, incomplete and inaccurate (by remembering the earlier answers to similar questions) and to take appropriate remdying action.

Probing is one of the trickiest yet most challenging aspects of an interviewer's job and requires a great deal of skill and experience. By useful probing the interviewer can obtain meaningful and useful data which gives depth and roundness to the purely factual answers; it can improve the flow of the interview and link different questions in a more natural manner.

Often with precoded questions, the alternatives are printed on a prompt card which is shown to the respondents. With open-ended questions it is usual to print the required probe on the questionnaire itself in order to achieve uniformity in the manner of probing.

Example

(On questionnaire): Which newspapers do you see regularaly?

SHOW PROMPT CARD

(On Prompt Card)

Star
Truth
Globe
Daily News
Weekly Review
Report & Record
Economic Digest
Clarion

B2.3.4 Recording the Answers

In most interviews, particularly in structured interviews, the answers are recorded by the interviewer on the questionnaire.

If the question is a precoded one, the appropriate code should be ringed or ticked (it is easier for interviewers to ring codes rather than place a tick in a space or box opposite the appropriate code).

Example The answer shown in the example above might be recorded thus:

Which newspapers do you see regularly?

Star	①		Weekly Review	⑤	(P)
Truth	②		Report & Record	6	
Globe	③	(P)	Economic Digest	7	
Daily News	4		Clarion	8	

With open-ended questions, a good deal of judgement is left to the interviewer: he/she has to summarize a long, verbal answer and to record only the essentials of it and yet not leave out valuable points. It is better to record as much as possible but this might break the flow of the interview as there will be a long wait while the interviewer writes the answer to one question before asking the next. This is another area where the skill, training and experience of the interviewer is important.

At the end of the interview, the interviewer must check that all the applicable questions have been asked and that there are none left; he/she must edit the questionnaire to ensure there are no inconsistencies between answers, and record his/her impression of the interview, the way particular questions were asked and observational notes of the respondent and the surroundings.

B2.3.5 Group Interviews

In some situations it is appropriate to interview respondents in groups. These group interviews will be unstructured or semi-structured. The method is used for research concerned with motive, attitudes and opinion.

This technique is most valuable when used in the exploratory or preliminary stage of a research project. It is extremely useful for indicating the actual language people use when discussing the topic informally; this ensures that when a questionnaire is being constructed, the wording of the actual questions used will be meaningful.

A senior research worker should lead the discussion, because he has a wide knowledge of the research problem, and has learnt not to allow his own prejudices to guide the discussion. The interviews must be held in surroundings which are familiar to the participants: with a group of manual workers, a room in a private home in their own village is suitable.

The group should not consist of more than 10 people. It is best to record the discussion by means of a tape recorder.

There are a number of other points concerning group discussions which can be followed up in the literature (5)

B2.3.6 Sources of Error and Interviewer Bias

1. Faulty Recording of Answers

The interviewer is rarely able to devote his/her whole attention to the answer being given as, while recording the answer, he/she may be preparing to ask the next one, deciding whether the next question is applicable or which section of the questionnaire he/she has to jump to next and perhaps reading the printed instructions on the questionnaire regarding the recording of the answer.

With open-ended questions, he/she has to listen to a long verbal answer, decide what is relevant and quickly write it down. Even in precoded questions, the respondent may give a long answer and the interviewer has to judge which single code is appropriate to the long answer.

Errors in recording answers may be caused by carelessness or misunderstanding of the question. The interviewer may jump to the wrong section of the questionnaire and ask inappropriate questions.

When recording the answers to open-ended questions, the interviewers may consciously or even subconsciously record only those parts of the answer which fit in with his/her own opinions, prejudices or biases.

2. Inadequate Probing

'Differential' probing, that is, variations in the extent to which different interviewers may probe questions, may lead to considerable response errors. Uniformity of probing should be aimed at by printing the allowable probes on the questionnaire.

3. Deviations in asking the Questions

This is clearly related to the previous point. If the interviewer changes the wording of a question or the order in which the questions are asked without instructions or permission from the survey director, this will lead to interviewer bias and to response error.

Possible bias can come about through the interviewers consciously or subconsciously projecting their own views towards the topic onto the respondents. This can arise either by tone of voice, the actual words used, emphasis on particular words or phrases, by gestures, facial expression and even in the recording of the answers.

This highlights the necessity for interviewer training and a detailed briefing.

4. Interviewer-Respondent Interaction

In any face-to-face situation, people always influence each other and interact in various ways. An interview, being a pseudo-conversation, is no exception to these sorts of personal interactions and influence. The attitudes, perceptions and motivation of respondent and interviewer are potentially biassing factors. Whether they will actually bias the interview depends largely upon the quality of the interviewers. Interviewers must quickly establish rapport, maintain motivation throughout the interview, ask the questions as instructed, be on guard all the time against influencing the respondent in any way, and record the answers as objectively as possible. The behaviour of the interviewers both before and during the interview should be controlled by means of adequate training and regular field supervision.

B2.3.7 Reliability and Validity of Interviews

Having discussed the sources of interviewer error, it is necessary to discuss the two interrelated concepts of reliability and validity.

(a) reliability refers to the consistency of the data, irrespective of what they are supposed to measure.

(b) validity refers to the extent to which the questions or items really measure what they are supposed to measure.

It is possible for answers to be highly reliable without being valid, that is, that they may be consistent but not measure what they are supposed to measure. But the converse is not true.

Regarding the reliability as measured by the internal consistency of the data obtained from any one respondent, it is usual with factual data to pose the questions more than once, wording them differently each time so that the answers can be correlated. One possible source of inconsistency, namely the interpretation of the question differently each time it is asked with consequent different answers, should be carefully tested at the drafting stage of the questionnaire so that there is no possible source of misunderstanding due to different wording.

Interviewers' variability can be compared at the analysis stage by comparing the answers obtained from a large number of respondents to each of the questions as put by the different interviewers. If the results obtained by some interviewers differ markedly from those obtained by others, there are grounds for suspecting that the interviewer variability is high and hence the reliability is low. What correcting action can be taken depends upon the extent of the problem. If only one or two interviewers are suspect, their interviews can be omitted (with perhaps substitutes being interviewed by another interviewer). If the trouble is widespread, there is sometimes no alternative but to abandon the survey. Note that the reliability of attitude and opinion questions cannot be tested as any rewording of such questions tranforms them into different questions: where an attitude scale is computed, its reliability can be tested by various means given in psychological tests (6).

The problem of determining the validity of the data obtained from most social survey interviews is particularly difficult because of the lack of suitable criteria against which to compare the data. For some factual questions it might be possible to check the results agains independent criteria based on data generally regarded as dependable, for example, census returns. In fact, the socio-demographic characteristics of the sample results should always be tested against such data in order to see whether the achieved sample is a representative one.

B2.3.8 The Selection and Training of Interviewers

By now, it should be clear that great care should be taken in the selection and training of interviewers.

For some types of interview situations such as group or depth interviewing it is better if the interviewing is undertaken by someone, such as a senior member of the research team, who understands the subject matter and the research problem. While knowledge of the subject is a necessary condition for this type of interviewing, it does not guarantee that the research will make a good interviewer. He, too, should undergo a training course in interviewing to understand the problems inherent in the communication process; there is always the danger that a researcher takes his knowledge, preconceptions, etc., into the interview situation and, because he is an expert in the subject, dominates the interview instead of being more of a receiver or catalyst to the group.

In the structured interview situation, a knowledge of and experience in the subject of the research project is not necessary as the data-collection instrument (the questionnaire) is formalized - the questions, and their order of asking are written down. Indeed, it is advisable not to use "too-educated" a person for the formal interview as these tend to have their own definite conceptions of the subject and to influence the respondent too much.

The interviewer should make a pleasant impression at first meeting, have a pleasing voice and manner, possess tact, be able to take the hard work and tiring hours, be accurate, reliable and honest and be able to work irregular hours as some respondents may only be able to be contacted at weekends or in the evening. As an interviewer has to be able to locate respondents, make appointments, record the results of the calls, fit in time and expense sheets and do a preliminary check of the completed questionnaires, she/he must possess organizational ability and be competent in the 'paper-work' side of things. Another desirable quality is being able to write clearly and legibly in all kinds of interview situations.

There is a difficulty in measuring 'good' interviewing and in deciding what interview characteristics are desirable.

A test which has been found useful was the Guilford-Zimmerman Temperment Survey*; the three factors in this particular survey (or scale) which appeared to relate to interviewer effectiveness were 'restraint' (seriousmindedness, deliberateness, persistent effort and self-control), 'thought-reflectiveness' (in observing other people's behaviour, mental poise) and 'personal-relations' (an ability to get on with others, tolerance and understanding of other people and their human weakness).

It is necessary that an interviewer has a good level of literacy as he/she has to record answers (nothing is designed more to interfere with the flow of an interview than the interviewer repeatedly asking "how do you spell that?") and verbal fluency is important; part of the interviewers' task is to explain the purpose of the survey and to quickly achieve a 'rapport' with respondents who may be reluctant at first to being interviewed. This ability to 'talk someone round' is very important.

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* found in Guilford (7).

In addition the importance of any one 'ideal' characteristic or quality varies from one survey to another. Sometimes expert knowledge of the survey subject may be an advantage, sometimes not, sometimes racial or tribal characteristics are necessary, at other times they are not. The research should avoid using anyone with strong views or prejudices on the subject of the survey so that some good interviewers may be excluded from one survey whereas on another survey (of another subject) they will be used and other interviewers excluded.

It is impossible to lay down any rigid specifications to suit all surveys.

Some survey organizations send applicants some questionnaires and they have to conduct trial interviews with persons unknown to them (they receive no money for this). In addition to completing these trial interviews satisfactorily, the successful applicants must not have too many other commitments on their time.

The British Government Social Survey (now part of the Office of Population Censuses and Surveys) interviews applicants, gives them a clerical test to assess accuracy in recording, summarizing, checking and classifying data. The failure rate is high so only a small proportion go into the actual training. While rigorous, this procedure is good and it gives applicants opportunity to withdraw their applications and it emphasises the testing of performance of routine tasks. Whatever his/her personal characteristics, it is no good engaging as an interviewer a person who cannot summarize answers, record them accurately, cannot follow instructions and who is slipshod and illegible.

There is as much diversity of opinion on the problem of training of interviewers as there is in the selection.

There is the formal training course, taking from 3 to 5 days and being made up of :-

(1) lectures

(2) mock interviews in the office

(3) interviews in the field (often under supervision)

Often recruits are sent out into the field with a supervisor who does the same 'demonstration' interviews then observes the recruit interviewing someone.

Another method is to use written manuals only: this is cheap but unsatisfactory as it does not give the recruit any opportunity to observe an expert at work or to have their interviews assessed by the surpervisor.

Recruits to the British Government Social Survey are first sent A Handbook for Interviewers (8) to study, then they attend a 3 day initial office training class during which they listen to lectures, take part in discussions and undertake mock interviews. Then they have actual fieldwork training where they observe a training officer interviewing then do interviews themselves watched by the supervisor. At the end of their fieldwork training, recruits are given a test based on their course, the Handbook and some tape-recorded interviews. Successful interviewers are given fieldwork supervision at regular intervals and can attend further training courses and 'refresher' sessions.

The Opinion Research Centre (University of Michigan) suggest that 'training-officer observed' interviews may inhibit the recruit and they have published a training scheme whereby the recruit tape-records the interviews and they are assessed in the office by the training staff.

The main ingredients for any good training scheme should be based on: a training manual, lectures and discussions, observation of trained interviewers, test interviews in the field, continuing training and continuous assessment of the interviewer's work.

B2.3.9 Fieldwork Supervision

This is essential, both in order to detect bad work, to keep interviewers up to scratch and assist in their continuous assessment. Interviewers should receive periodic reports on their work, shortcomings and ways in which their performance could be improved. In any case, the fieldwork supervisor provides the main link between the head office and the field staff. In a small organization, one with a small mobile staff, or in a small country, the fieldwork supervisor may be situated in the survey office while in a large country, with a large fieldwork force spread throughout the country, localized fieldwork supervisors may be used. Each region/area will be in charge of the supervisor who is responsible for all the field staff in his/her area. The supervisor may do the briefing locally, will deal with his/her interviewers' problems regarding fieldwork assignments, wrong addresses, etc., and is responsible for giving out the questionnaires and respondent lists and for collecting the completed questionnaires. The supervisor will carry out periodic checks on the interviewers.

With an ad hoc survey, this type of continuous supervision is out of the question but even here there should be someone in the head office who is designated as the fieldwork supervisor or so that the interviewers have someone to contact if they have problems and inquiries. Again, someone should be given the responsibility of handing out the questionnaire, receiving the completed ones and should be responsible for seeing that the interviewers complete their assignments.

B2.3.10 Briefing

Before any survey goes out into the field, it is essential that the interviewers come together with one or more of the research team in a lecture/discussion session so that the surveyor can explain the purpose of the survey, its coverage, timetable, etc., and go through the questionnaire, question by question, explaining how each should be asked, of whom and how the answers should be recorded. With a complicated questionnaire which has a number of 'paths' where the interviewer has to jump to special sections for different subgroups of respondents or skip questions or part of them, it is essential that at the briefing session, the research should take the interviewers through every possible combination of questions and make sure that they understand their instructions fully, both those printed on the questionnaire and in the handout.

It must be clearly explained to the interviewers who is eligible for interview and what to do in the case of the various types of nonresponse.

Interviewers should be given printed instructions summarising what is said at the briefing session (particularly detailing any special instructions regarding respondents), the procedure to take for nonresponse and describing how each question is to be handled. Interviewers should study the printed instructions after the briefing as a means of reinforcing what was said at the briefing and as an aide-memoire.

Interviewers should be told to study the questionnaire thoroughly before they undertake their first interview so that they are completely familiar with it and with which questions apply where and which questions to ask next after a filter or conditional question. A trial run-through with a friend or member of the family is recommended.

B2.3.11 Fieldwork Checks

The main purpose of fieldwork checks (or spot checks as they are commonly known) is to ascertain :-

(1) whether the interviewer actually did all the interviews claimed;

(2) whether the response rate is satisfactory;

(3) whether the questions have been asked and the answers recorded in accordance with the instructions.

The first question can be answered by sending postcards to a sample of the respondents asking whether they were interviewed recenly on a certain topic. Interviewers have been known to interview friends or to make-up the interviews.

The second aspect can be done by comparing an individual's response rate with those of interviewers on the same survey and with his/her previous assignments.

Regarding the third point, this is difficult to check but discrepancies can be picked up at the coding and editing stage such as not selecting the correct respondent, (such as asking single people questions directed to married respondents only), or the interviewer may have an unusually high proportion of "don't knows" or incomplete answers.

Where there is a local fieldwork supervisor, the spot-checks may be carried out by him/her; or one of the interviewers may be instructed to spotcheck without the other interviewers' knowledge (to avoid collusion). In the case of personal spotchecks, as well as ascertaining whether the respondent was interviewed, all or part of the questionnaire can be repeated in order to provide comparative date to test point 3 (above).

B2.3.12 Decisions to be made by the Researcher

1. Recruitment of Interviewers

Whether interviewers are recruited depends upon a number of factors. One is whether the survey is a one-off one, part of a series or whether the research team is given the function of carrying out other surveys in the future whether each one is a one-off survey or not (that is, to act as a fulltime survey unit for itself or other departments).

With a single one-off survey, all the problems of recruiting interviewers, training them and the organizational problems of fieldwork can be avoided if there is a research institution or unit which has its own fieldwork staff and will either contract for the fieldwork or else hire-out its field staff. If no such body is available locally, then it might be possible to locate experienced interviewers by advertising.

Failing this, the researcher is faced with two opininons

(a) recruit outside staff

(b) use staff inside the establishment.

There are advantages and disadvantages to each. Cost considerations may lead to the use of staff from inside the establishment as they will already receive their wage or salary. But being a member of a department does not necessarily make them good interviewers; they may have preconceptions regarding the subject through working in the department and knowing the research team. Again, they may, in the course of their normal employment, deal with the target population in a professional manner so that this client-professional role may be carried over into the interview.

For example, lack of finance, other staff, etc., may make it necessary to use Agricultural Extension Officers to undertake a user-studies survey of farmers yet, in their normal role, they have to be assertive and instruct farmers in which crops to grow, how to cultivate them, etc., so this role may be present in the interview. Even if they can be trained to act as an 'interviewer' and not a professional advisor, the respondents (i.e. the farmers) may continue to regard them in their primary role as instructors and government officials.

The recruiting and training of outside interviewers will need a large expenditure of effort and money and it is necessary that someone experienced in this is given the responsibility. For a one-off survey, this may be more trouble than it is worth though it should be realized that if one's own staff is used, these too will need training.

Where a number of surveys are going to be undertaken, it would probably be to the benefit of the research team to recruit and train its own interviewing force as the use of an outside agency, while financially justifiable for a one-off survey, will prove very costly to use regularly.

A team of outside interviewers is usually employed on a part-time basis as very few research agencies have sufficient work to keep interviewers busy continuously and, in any case, the employment of part-timers on a freelance self-employed basis avoids the many financial and administrative problems of full-time employees.

2. Payment

Payment to interviewers (except own staff) should be good enough to attract the right kind of people and payment should be made promptly. The researcher has to decide whether to pay them on a time or piece rate basis. Both methods are used. The advocates of the piece-rate system maintain that it provides an incentive to the interviewers to obtain completed interviews - the interviewers are not given the full-rate for a refusal or noncontact. As the interviewer has a fixed assignment, the incentive is to achieve as high a response rate as possible.

With time-rates, its advocates maintain that it leads to more satisfactory work though it might lead to interviews "stretching out" the time of interviews in order to achieve a higher payment.

Travelling expenses must be additional to the interviewing fee and where the interviewing takes hours extend over the usual meal times, a subsistence allowance has to be paid. If for some reason, an interviewer has to be sent away on an assignment for more than a day, hotel expenses have to be paid.

3. Assignments

Interviewers should be given reasonable assignments. The respondents should be concentrated as much as possible in an area as frequent long journeys for dispersed interviews are very discouraging especially if a number of recalls have to be made.

How many interviews each interviewer should be given per assignment depends on many factors - the length and types of questionnaire, the amount of inter-respondent travelling involved, the time scale of the survey and how many interviews can be done in a day.

This latter point, itself, is dependent upon the type of population, length of questionnaire, area of work or residence, etc. With a scattered population, such as in a rural area, travelling will take up the greater proportion of the time and two interviews a day may be all that is possible. The same figure could be true of business-men, academics, etc., where an appointment may have to be made as the respondent has a busy working schedule. In interviewing housewives in an urban area, an interviewer may be able to contact 4 or 5 a day, but if an interview is required with the husband, these can usually only be done in the evening after he returns home from work. In short, all these problems are specific to the type of survey, the population and the area in which the survey is being conducted.

Given a choice between a small number of interviewers each with a large amount of interviews and a large number of interviews with small assignments, the latter is preferable as it leads to smaller interviewer response errors.

Recruiting and training of interviewers are two aspects of good interview efficiency, also conditions of work such as hours of work, rates of pay, assignments etc., are important but an essential factor is morale. This is of course affected by the above points, but morale can also be improved by making the interviewer feel a vital part of the research team. Reports on their work, brief synopses of the results of the projects they have worked on and other informal contacts (in addition to referesher courses) can maintain their morale. Time spent in the organisation's head office checking, editing and coding sections can increase their interest as well as being useful instruction in the necessity for the field staff to fill in the questionnaires.

B2.4 Self-recording by users

Methods under this heading fall broadly in two categories - self-completed questionnaires and diaries.

B2.4.1 Self-completed questionnaires

This method is analogous to the method of structured interviewing (section B2.3.3). The participants in the survey are each given or sent a schedule of questions which they complete in their own time and return to the survey organiser.

The advantage of adopting this method is that a larger sample may be used, so that the results can be more representative of the true situation.

The disadvantages are that the method can only be used with a literate population; the survey researcher has no vision of the conditions under which the returned questionnaires were completed; and the range of topics which can be investigated are limited to those which can be stated through the printed word.

Generally speaking then, the self-completed questionnaire method can only be used with research and academic staff.

B2.4.2 Diaires

The diary method of gathering data about user access to information is among the oldest of methods, perhaps because it is so straightforward. Systematic self-observation is capable of yielding fine results. However, in practice the method is difficult to extend to a large number of users, none of whom is likely to be as deeply interested in observing and recording his own behaviour as is the person planning the national information system, or in studying the behaviour library users.

The essential feature of this method is that respondents keep a diary whether written or tape-recorded. The recorded items are those units, events which are the object of the study. If the study is investigating needs then every time the respondent requires information, he records the fact, the source of the information used if any, the applicability of the information found or used to his needs, if the need cannot be fulfilled, the alternative actions taken and so on.

The problems with the diary method include poor response; enthusiasm for filling in diaries quickly wanes and many respondents stop. Even where they continue to do so they may fill them in at one period during a day such as just before finishing work, and not each time an information need is encountered. The quality of the data may diminish over time as entries become shorter.

Still a further criticism of the diary method is the possibility of acquiring a biased user population. Working with a subset of users who volunteer to observe themselves (which tends to leave out, for example, busy people) is not equivalent to working with a randomly chosen sample.

The diary method, given these limitations, does give the investigator a feel for the information problems of people in various field. It can of course only be used with literate members of the population. An example of a diary form is shown in figure B2.3 and there are some published reports which describe the use of this technique (9, 10).

Figure B2.4 is a diary form used when the diary keeper visits a library.

Fig. B2.3 Diary Form for general use by students

(1) EDUCATIONAL TASK	(2) WRITTEN INFORMATION USED. Please describe carefully, see notes	(3) NONE Tick, if appropriate	(4) SOURCE OF KNOWLEDGE OF INFO. "BIT" Code: See Key	(5) SOURCE OF INFO. "BIT" Code: See Key	(6) EVALUATION OF INFO. "BIT" Code: See Key
Resistance & Safe Working Limits of Cylinder Heat Coil: Details from D. Sadhu, Research Officer; Research Grant Proposal.		✓	(h)	(g)	(a)
	Previous Proposal written by self.		(h)	(g)	(a)
Chase AGARD-AG-165 (Thin-Film Sensors).		✓	(h)	(b)	(c)
Re-align optics of Mach-Zehnder Interferometer.	M. Dixon, S.M.E., Cranfield, SME/1228/MD/AB.		(c)	(f)	(c)
" " " "	L.H. Tanner, ARC R&M Nos 3069 & 3131, HMSO, 1959.		(g)	(b)	(c)
General Background Reading	Gibbings, Thermo-Mechanics.		(h)	(d)	(a)
Re-align optics of MZI.	Chen & Bird, J. Phys. E., 1971		(g)	(b)	(b)
	L.H. Tanner, J. Sci. Instrum., 1967		(h)	(g)	(b)
Interferometry & Axisymmetric Flow Fields.	Scenas et al, ISA Trans, 1972	–	(f)	(b)	(a)
Interferometric Techniques: Review	Grof & El-Wakil, J. Heat Transfer, 1969		(g)	(b)	(c)
	Scenas & Fletcher, " " , 1970		(g)	(b)	(c)
Re-align optics of MZI: Discussion with Prof Probert.		✓			(b)
General Background Reading.	Gibbings, Thermo-Mechanics		(h)	(d)	(a)
" " "	Simonson, Heat Transfer		(c) [illegible]	(d)	(b)

KEY TO CODES

Column 4 Source of Knowledge of Information
(a) Reading lists
(b) Tutor, word of mouth
(c) Others, word of mouth
(d) Library, browsing round shelves
(e) Library, card index
(f) Library, published bibliographical tools
(g) Citations
(h) Other

Column 5 Source of Information
(a) Management Library
(b) Stafford Cripps Library
(c) Libraries off campus
(d) Personal Libraries
(e) Borrowed from others
(f) Tutors' Handouts or Photo Copies
(g) Other

Column 6 Evaluation of Information
(a) Definitely Useful
(b) Quite Useful
(c) Neither Useful nor Useless
(d) Slightly Useless
(e) Definitely Useless

Verbal Information
(Exclude formal class contact hours)
CONVERSATIONS WHICH ASSIST EDUCATIONAL TASK (IN OR OUT OF CRANFIELD)

YES ☑ NO ☐

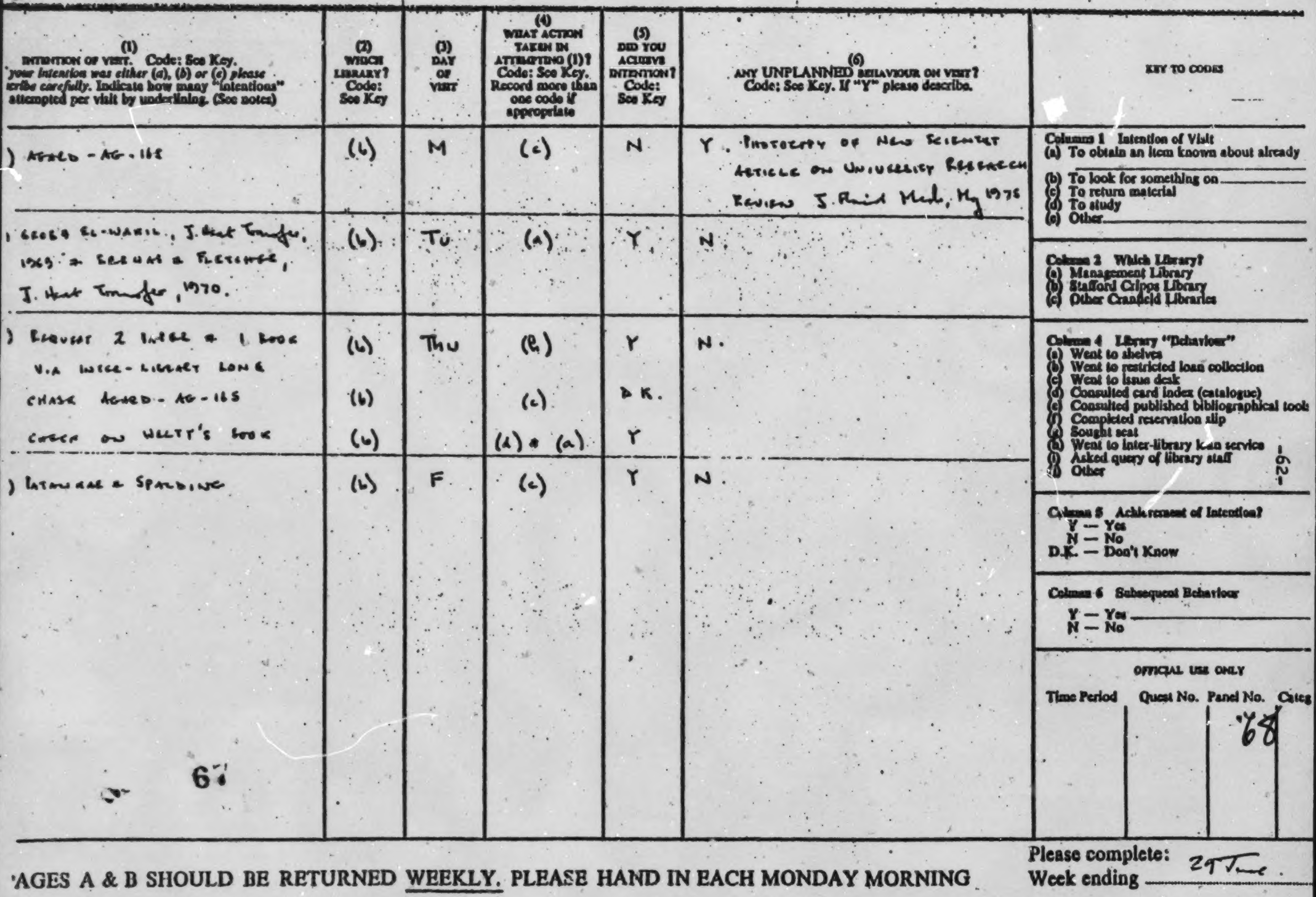
If YES please describe:
See under (1) above

GES A & B SHOULD BE RETURNED WEEKLY. PLEASE HAND IN EACH MONDAY MORNING

lease complete: Week ending 29 June 1975

OFFICIAL USE ONLY	Time Period	Quest No.	Panel No.	Catego

Fig. B2.4 Diary form for use on library visit



(1) INTENTION OF VISIT. Code: See Key. your intention was either (a), (b) or (c) please scribe carefully. Indicate how many "intentions" attempted per visit by underlining. (See notes)	(2) WHICH LIBRARY? Code: See Key	(3) DAY OF VISIT	(4) WHAT ACTION TAKEN IN ATTEMPTING (1)? Code: See Key. Record more than one code if appropriate	(5) DID YOU ACHIEVE INTENTION? Code: See Key	(6) ANY UNPLANNED BEHAVIOUR ON VISIT? Code: See Key. If "Y" please describe.
) AGARD - AG - 165	(b)	M	(c)	N	Y. PHOTOCOPY OF NEW SCIENTIST ARTICLE ON UNIVERSITY RESEARCH REVIEW J. Fluid Mech., May 1975
) GEORG EL-WAKIL, J. Heat Transfer, 1969 & SREHAR & FLETCHER, J. Heat Transfer, 1970.	(b)	TU	(a)	Y	N
) REQUEST 2 INTER & 1 BOOK VIA INTER-LIBRARY LONE	(b)	Thu	(h)	Y	N.
CHASE AGARD - AG - 165	(b)		(c)	D K.	
CHECK ON WELTY'S BOOK	(b)		(d) & (a)	Y	
) PATANKAR & SPALDING	(b)	F	(c)	Y	N.

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KEY TO CODES

Column 1 Intention of Visit
(a) To obtain an item known about already
(b) To look for something on
(c) To return material
(d) To study
(e) Other

Column 2 Which Library?
(a) Management Library
(b) Stafford Cripps Library
(c) Other Cranfield Libraries

Column 4 Library "Behaviour"
(a) Went to shelves
(b) Went to restricted loan collection
(c) Went to issue desk
(d) Consulted card index (catalogue)
(e) Consulted published bibliographical tool
(f) Completed reservation slip
(g) Sought seat
(h) Went to inter-library loan service
(i) Asked query of library staff
(j) Other

Column 5 Achievement of Intention?
Y — Yes
N — No
D.K. — Don't Know

Column 6 Subsequent Behaviour
Y — Yes
N — No

OFFICIAL USE ONLY

Time Period	Quest No.	Panel No.	Categ
		68	

AGES A & B SHOULD BE RETURNED WEEKLY. PLEASE HAND IN EACH MONDAY MORNING

Please complete:
Week ending 29 June.

B2.5 Observation

Observation is the classic method of scientific enquiry. The accumulated knowledge of biologists, physicists, botanists, chemists and other natural scientists is built upon the foundation of centuries of systematic observations, much of it in natural surroundings rather than the laboratory.

Systematic observation as a technique of observation of people and their actions can plan an important part in any investigation provided that the research strategy is carefully thought out. It is not sufficient that the object to be observed is there (e.g. farms and farmers) the method must be

* suitable for investigationg the problem
* appropriate to the population under study
* reliable
* objective

In situations were the observations are made of an individual respondent, his actions, use of information sources, etc., the method is highly-consuming in terms of time and more importantly, in manpower; a one-to-one correspondence between the observer and observed can only be used in small scale, intensive studies and this method is unsuited to the large scale collection of data on information needs.

As an integral part of the questioning process, observation has a very valuable role to play. In addition, observation can be of great value in producing detailed case studies, information which may lead to hypotheses that can be tested by other methods.

The observer must have a prior designed plan of the data required as the potential events and items which could be observed are so vast and often so amorphous that a structured observation guide is necessary - this is a list of items and events on which data is required.

A good recent example of the use of observation techniques in determining information needs will be found in the report by Wilson and Streatfield (11).

Figure B2.5 is an example of an observer's recording sheet, the columns being for the following data items:

1. Description : the activity being recorded.
2. Tally : one tick is placed here for each time the activity is noted.
3. Total : a total of the ticks recorded.
4. % : 3 expressed as a percentage of the total activity recorded.

Fig. B2.5: Library Activity Observation Recording Sheet

DAY ______________________ DATE _______________ PERIOD _______

1. Description	2. Tally	3. Total	4. %
Reading	~~1111~~ ~~1111~~ ~~1111~~	15	16.7
Writing	~~1111~~ ~~1111~~	10	11.1
Searching Shelves	~~1111~~ 1	6	6.7
Thinking	~~1111~~ ~~1111~~ ~~1111~~ ~~1111~~	20	22.2
Walking About	~~1111~~ ~~1111~~ ~~1111~~	15	16.7
Borrowing/Returning Books	11	2	2.2
Talking to Librarian	111	3	3.3
Talking to non-Librarian	~~1111~~ 1111	9	10.0
Absent	~~1111~~	5	5.6
Other	~~1111~~	5	5.6
	Total	90	100.1

B.3 THE ORGANISATION AND PLANNING OF SURVEYS

B3.1 Introduction

This section deals with the practical problems of setting up and carrying out a survey. It necessarily duplicates topics which have been touched on in other sections but it deals with the practical aspects and, therefore, the theoretical or general aspects of each should be obtained from these other sections. In any case, it is assumed that the surveyor will have read earlier sections and now needs guidance on how to put the points into practice.

It is important to realise that all the stages in the survey process are interreleated and that, although they can be listed sequentially many can be organised and carried on at the same time.

It is also important to remember that many of the technical and practical problems are specific to the type of survey being organised - its subject-matter, population covered, finance and staff available and so on. Which stages are necessary in any particular situation will depend upon the project and the conditions prevailing in a country - existence of research institutions, previous experience, etc., so that in any one situation, one or more stages may be redundant, but all the necessary stages are outlined and the relevant ones can be selected according to the particular needs of each project and country.

B3.2 Agreeing the Broad Objectives of the Research

One of the first stages is to identify the research topic which often is initiated by recognising that there is a research problem and that it would repay investigation. At this stage it may only be necessary to specify a title for the research project and the population to be studied. Filling in the details -

the type of sample, method of data collection, specific topics to be investigated, etc. - can be settled after the survey organisation has been set-up and are contingent as a detailed study of past research projects, papers and findings which can be uncovered by a literature search.

B3.3 The Staffing Structure

Some countries may wish to establish a national co-ordinating committee to advise the research director and the executing agency on the survey. This committee could include professionals (whether nationals or international consultants) interested in the research aspects of the study and, perhaps, representative of government ministries and other agencies concerned with providing information, educational establishments, business and agriculture.

B3.3 1. The Survey Director

The national director should be a sufficiently senior member of the organisation concerned as he will have to deal with senior staff of all government agencies and other establishments interested in the research subject. In some cases the national director may be a person experienced in surveys, in other cases he may not have any research experience but is director in a nominal sense. In these circumstances it is important that the national director appoint an actual survey director. In the remainder of the section, reference is made to the survey director, the person responsible for the conduct of the survey whether he is the national director or some other person.

It is essential that the survey director is a person with expertise in survey techniques. Ideally, the director should also have experience in the subject matter of the research project but this is not strictly necessary as such a person can always be co-opted onto the research team.

Where there is a nominal national director and a survey director it is important that their relationship should be clearly defined. There should be a clear-cut division of responsibilities (especially with regard to finance) and the survey director should have a free hand in the organisation of the survey, and the authority necessary to carry out his decisions. In stating "free hand", the director may be broadly responsible to a national or management committee but the director must be free to settle detail and technical matters within the broad areas agreed to by the committee.

The survey director must be able in the early stages of the project to identify the problems and issues which will occur during the project; he is responsible for the general organisation and decision making in the survey and he must be willing to undertake some of the tedious workload and activities similar to those undertaken by his assistants.

B3.3 2. Survey Organisation

Two diagrams are given which describe a general scheme for personnel necessary to tne survey and for the field organisation. These diagrams are only general outlines; not all of the personnel will necessarily exist at the same time in the survey organisation, nor are they necessarily vital to each particular survey as the organisational framework for individual countries (or for different surveys within one country), will differ widely according to the particular conditions of the country.

The size of the survey organisation and the size of the staff change are different stages of the survey. In the initial planning stages, only the survey director and his assistants are likely to be involved (including any survey experts). As the pre-testing, piloting and other fieldwork stages approach, additional office staff may be needed and analysis stages, a different category of staff may be necessary.

If the survey is a one-off one, this means that the size of the survey organisation will fluctuate according to the stage reached. However, if the survey organisation is permanent, it may not differ in size over time as the different categories of staff can be employed on the different stages of separate surveys. For instance, the director and his assistants may be planning one survey while the fieldworkers are administering another one and the analysis staff may be concerned with yet another survey.

Some temporary support units such as the computer unit or printing section may not be actually a part of the survey organisation but may exist as separate organisations. In these cases the survey director must establish good working relations with them and discuss the survey timetable with them to ensure that they have adequate prior warning of the forthcoming demands on them and, in the light of the demands upon them, to revise the survey timetable.

In Diagram 1, the term "temporary" does not necessarily refer to the period employed in the survey organisation, rather the "duration" of the time employed on the survey, in a large survey organisation, the coders and data preparation staff may be permanently employed within the survey organisation.

Each country will need to develop its own survey organisation adapted to its own conditions and purposes. In some, much of the organisation will exist, in others, existing organisations can be shifted to the purposes at hand. The essential point is that it is up to the survey director to ensure that the organisation and staff are set-up when needed for the survey.

Diagram 2, shows an example of the organisation of the fieldwork staff. Where finance and size of the organisation permit, there should be a permanent member of the control office who is designated as the Fieldwork Manager who can, in addition to being responsible for the field workers, be in charge of :-

DIAGRAM 1

Survey organisation - an example

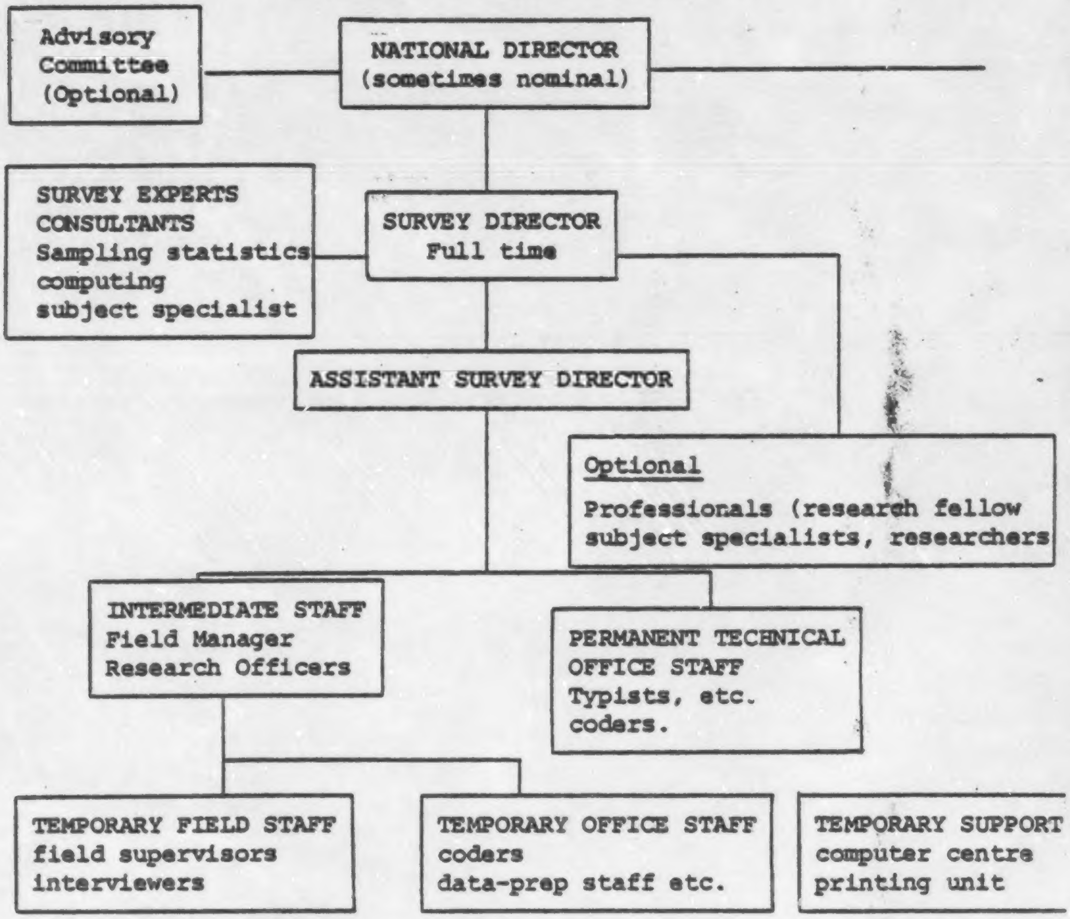
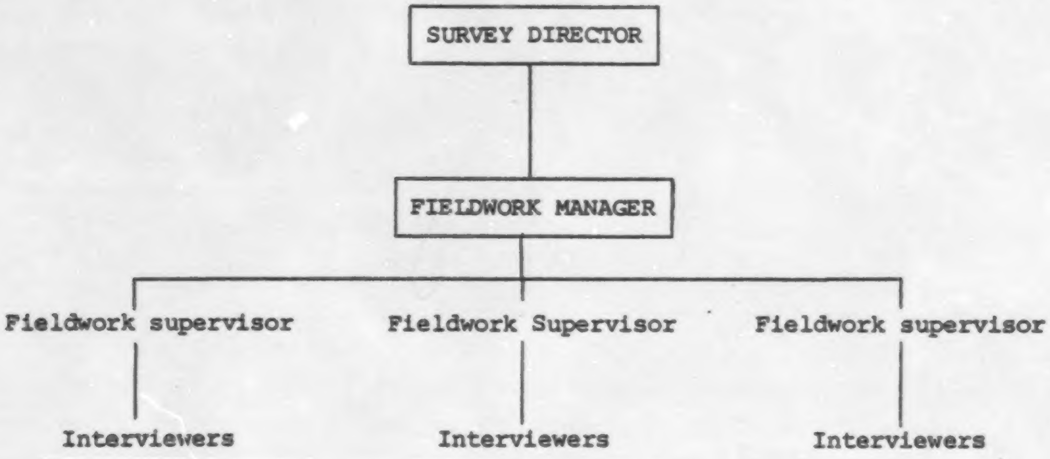

Advisory Committee (Optional)
NATIONAL DIRECTOR (sometimes nominal)
SURVEY EXPERTS CONSULTANTS Sampling statistics computing subject specialist
SURVEY DIRECTOR Full time
ASSISTANT SURVEY DIRECTOR
Optional Professionals (research fellow subject specialists, researchers
INTERMEDIATE STAFF Field Manager Research Officers
PERMANENT TECHNICAL OFFICE STAFF Typists, etc. coders.
TEMPORARY FIELD STAFF field supervisors interviewers
TEMPORARY OFFICE STAFF coders data-prep staff etc.
TEMPORARY SUPPORT computer centre printing unit

DIAGRAM 2

Survey organisation - example of fieldwork staff structure



the coders, editors and date preparation staff and the production of the questionnaires, interviewers instructions, coding guide, etc. If the unit is small, the post of Fieldwork Manager could be vested in the Survey Director or his assistant.

B3.4 Establishing the Survey Organisation

Whatever the actual organisational structure set-up the permanent personnel should be recruited at the beginning of the project while the temporary staff must wait until practical decisions, such as sample size, sampling points, type of questionnaire, etc., have been settled. But these must be decided early in the project and the temporary staff recruited and told the date on which they will be needed.

Some basic organisational problems involve the setting up of the survey offices physically - adequate office space must be obtained (bearing in mind that the staff will not be at full complement until the coding/editing stage so that some large rooms with tables and chairs as well as the actual offices for permanent staff will be needed).

Orders must be placed early for all the office materials needed - tables, desks, chairs, stationery, paperclips, stapling machines, guillotines and the other 1001 things needed in an office and especially the provision of a sufficient number of telephone lines so that the field staff can communicate with the head office.

B3.5 Selecting the Data Collection Methods

Basically, the data collection technique is selected by specifying the type of data needed to answer the problem posed by the research, considering the available methods which might provide these data and choosing the most appropriate one. The criteria include not only the needs of the research but the cost in time the money of the different methods, the demands each method makes upon the subjects of the research, and the skills and knowledge needed to analyse the data.

For example, in order to study information users most effectively might involve the use of personal interviews in the respondent's own homes but finance and cost considerations might restrict the research team to use the interviewing method on library users, defining a user as someone who enters the library, or even to an analysis of loan statistics only, (the latter method avoids all the organisational and financial problems of field-work).

The choice should be made in terms of the research question, the resources and facilities available and the demands of the different techniques.

The choice should not necessarily be between different combinations of methods. For example the face to face interview may be combined with the diary technique or the critical incident and, perhaps, one or more rating scales.

B3.6 Preparing the Timetable

Some broad aspects of the timetable will already have been considered at the initial stages of the research project and certainly when choosing the data collection methods as one of the criteria for choosing the latter might be the time constraints on the project. On the other hand, if the techniques are chosen by criteria other than time then once selected, they will enable the research director to work out the timetable in detail.

In estimating the time needed to conduct the fieldwork will depend upon such factors as types of interviews, number of interviews, the number of interviewers and the dispersion of the sample.

In an urban household survey, an interviewer might be able to interview 3 - 4 female respondents in a day, whereas interviewing males he might be able to interview only 2 - 3 respondents in the evening.

With a quota sample (see section B4.5.1), an interviewer might be able to fulfil an assignment of 10 - 20 a day depending upon the quota controls and length of the questionnaire. This last factor has an important influence upon the time required for interviewing in quota samples or in surveys where people are approached at will in libraries, etc. as the shorter the questionnaire, the less the time needed and therefore the sooner the next person can be approached. However, in a random sampling where the interview is with a selected person, the length of the questionnaire is not so important a factor as most of the time is spent in locating the respondent (often needing appointments and recalls to be made) and travelling to the next respondent.

One area where the time requirements often are underestimated is in the analysis and report writing stages.

An example of a survey timetable might be :-

		Man Weeks
Setting up objectives and setting up initial organisation structure.		8 weeks
Preparing documents, questionnaires, etc. (concurrent with recruiting interviewers, establishing relations with computing. dept. etc.)		8 weeks
Interviewing	(a) 1000 random household surveys 10 interviews per week/interviewer and 20 interviewers.	6 weeks
	(b) 500 interviews with academics 5 week per interviewer and 10 interviewers.	10 weeks
Coding and editing, say 1000 questionnaires (assuming 67% response rate).		2 weeks
Data preparation.		1 week
Data analysis and report writing.		16 weeks

As can be seen, the time of some of the phases, such as fieldwork coding and editing, depend upon the number of questionnaires, their length, the ratio of closed to open ended questions and the number of staff available. Thus the timetable of each project is specific to it but as experience is built up, so more realistic forecasts can be made.

B3.7 Designing and Testing the Questionnaire

This is a phase which should not be hurried as many well thought out research projects have been spoiled by bad questionnaires. The design of questionnaires is an art rather than a science and one which comes with experience. It may be possible to use all or part of other people's questionnaires. This will enable comparisons to be made with other results but careful attention should be paid to the definitions used so that unappropriate questions are not asked of the wrong populations. It is unlikely that a general set of questionnaires could be designed that is applicable to all user studies projects as each project is specific to a time and place, it is possible to have modules of 'skeleton' questionnaires so that the appropriate modules can be selected, put together and adapted to the particular situation and population (see Appendix).

Extensive pre-testing of the questionnaire should be carried out to test particular questions, wording and the flow of the questionnaire. It is not unusual to have a number of pre-tests in order to try out particular questions.

In the initial general discussion of the questionnaire - what questions to ask, how to word them, how people phrase certain concepts, etc., it is extremely useful to have a Group Discussion where a number of respondents are brought together and the subject of the project is discussed generally by the group. One of the research team acts as the discussion leader whose task is to introduce certain topics, but to be passive in that he does not 'lecture' the group but encourage all the members to discuss the topics generally. From the tape recorded discussion; valuable information can be gleaned on which topics are important, how people think about them and phrase them.

B3.8 Preparing the other Documents

At the same time as the questionnaires are being designed and printed, the other necessary documents can be produced, such as worksheets, contract sheets, expense forms, coding and punching forms.

Once the questionnaires have been finalised, the interviewers' instructions and the coding guide can be drafted and published.

B3.9 Setting up the Computing Stage

Once the questionnaires have been finalised, work can commence on setting up the computing stage - drafting the variable names, descriptions, input formats, values, etc.,- which will be used by the computer programme to produce and print the tabulations and statistical analysis. Even where a computer is not to be used for analysis, some preparation for manual analysis can be done at this stage.

B3.10 The Sample

B3.10 1. Defining the Population

The target population has to be determined and defined. Once done, the next step is to consider what sampling frames are available, and it may be the case that, if no ideal frame is available and cannot be compiled, the target population is re-defined so that an available frame can be utilised.

If a quota sample is to be used, official statistics are consulted in order to set up the quota controls.

B3.10 2. Primary Sample Section

Where a multi-stage design is used, the primary, secondary, tertiary, etc., stage units are selected. Decisions have to be made on the coverage of the sample. It may be the case that though a national sample is required, lack of interviewers in certain areas, or the wide dispersion of the population in other areas, may lead the survey director to omit certain regions and areas from the primary-stage selection procedure.

Mapping of characteristics may be necessary in order to be able to select formal stage 'blocks'.

Tha mapping and listing operation should be carried out quickly. It is a large task and requires sizeable staff.

Although it is a routine job, the listing should be carefully organised and supervised. One of the main problems during mapping is the exact definition of the boundaries of the sampling area due to old and inadequate maps, changes in areas, etc.

Whatever the basis of mapping, whether dwelling, establishment or household, care must be taken that the definitions are used uniformly by the listers.

B3.10 3. Sampling Frame

When the formal stage units have been selected, the sampling frame for them should be compiled. In some cases it will be a case of bringing together separate frames such as parts of the electoral register. In others it may involve listing households, dwellings or other establishments.

B3.10 4. Selecting Final Stage Sample

Once the sampling frame has been compiled, the actual sample of units can be selected. The sample could be individuals, households or other establishments; if selection is to be done within the selected units by the interviewers, the procedure for selection should be worked out and printed.

The lists of respondents for each interviewer should be printed from master sample list.

The survey director and his staff should make a detailed report on how the sample was drawn and any special difficulties met. The objective is to know at any moment during the entire process exactly which steps and procedures were followed. Difficulties encountered, and the way in which they were solved constitutes valuable information for the country itself for future survey work. The descriptive report and sampling should be written at once while it is fresh in the mind. It is further essential to provide a detailed report of the sample design showing the number of units selected and their selection probabilities and each sampling stage and in each structure.

B3.11 Recruitment

The fieldstaff, supervisors and coders should be recruited and they should be warned when they will be needed, rates of pay, type of interviews, areas, etc.

It may be necessary to train the field staff especially if they are members of the parent organisation. Decisions should already have been made on whether to use full-time/part-time staff and to pay by time or piece rates.

B3.12 Piloting

A pilot of the project should be carried out with the documents to be used, and on the type of respondents required in the main survey.

The whole purpose of the pilot is to test all the aspects of the survey to ensure that all the documentation is adequate, that all the staff understand their functions properly, that the coding categories are adequate and that the data-analysis programmes produce the right type of information. If serious faults are found (such as in the questionnaire or sample selection procedures) more than one pilot may be necessary. The pre-tests and pilots are designed to improve the survey documents and organisation. Any difficulties encountered by interviewers, coders, etc., must be noted and action taken to remedy them. The survey director and his staff must analyse the completed questionnaires and interviewers' reports to study how the survey works and to make any specific changes necessary.

During the planning stage of the survey when the time-table is being prepared, it is important to allow a sufficiently long period between the end of the pilot and the briefing for the main survey to allow changes to be made to all the documents concerned. Altering documents during a survey, sending amendment sheets to interviewers, coders, etc., quickly leads to disorganisation and errors in the final data.

B3.13 Briefing

After the pilot is completed and all the necessary amendments have been made, the interviewers should be brought together to brief them on the purposes of the survey, the type of respondents and how to adminster the questionnaire.

It may be decided to brief the fieldwork supervisors and then let them brief their own team or to brief everybody; again it may be decided to brief continually or to have a number of local briefings. Whatever is decided, all the required people should be brought together and at least half-a-day set aside for the briefing.

Each interviewer should leave the briefing with a wallet containing :-

- sufficient questionnaires
- a list of respondents' names and addresses
- a copy of interviewer's instructions
- expense, work and report sheets
- a pen or pencil
- (preferably a clip board)
- the name, address and telephone number of her supervisor or other person to contact in case of queries and difficulties.

B3.14 Fieldwork

Each interviewer must work to the same standards and instructions. This requires detailed supervision, and in turn, requires supervision of the supervisors and good communication between all members of the survey team. The survey director and his staff should maintain a continuous contact with fieldworkers and check returned questionnaires in order to evaluate the performance of the fieldstaff.

The number of the fieldwork staff used depends upon the size of the survey, time allocated to the fieldwork and the geographical, cultural and other factors.

The fieldwork supervisors (whether they are head office staff or in the field) should maintain a constant communication with their interviewers and check their questionnaires daily; this is especially important during the 'initial' stages of the fieldwork when the interviewers are still unfamiliar with the questionnaires and errors might arise.

An important determinant of the smooth flow of events in any survey is the care taken with regard to the administrative aspects. Such things as not having enough questionnaires, wrong address lists, or having to carry an armful of dirty questionnaires because briefcases were not issued, may seem minor irritants, but they can soon multiply, effect morale, and, therefore, the success of the whole project.

A possible source of conflict is removed if the pay-rate is established at the start and payments made regularly.

In addition to having control sheets for each supervisor/interviewer detailing their progress, the survey director should have a Master Control Sheet which contains all the information to tell him at a glance how the fieldwork is progressing - number of interviews completed by supervisor/interviewer, number of refusals, number outstanding, etc., and it should be updated daily. In addition it should contain information on the progress of other aspects of the survey - coding, editing, data preparation, etc.

B3.15 Editing and Coding

Editing involves the verification of answers to all the questions and to certain combinations of questions, coding 'open-ended' questions, and the checking of all steps in the questionnaire. Editing takes place before coding so that fewer problems arise during the coding and computer checking stages. Editing should start immediately the questionnaires start arriving in the office from the interviewers on this will enable it to be done quicker and also enable queries to be referred back to supervisors and interviewers.

Wherever possible editing should be done on a 100% basis. It is an extremely boring task but is vitally important if the value of the data is not to suffer.

Coding involves assigning codes to open-ended questionnaires (or parts of questions) and the transferring of all codes from the questionnaire to coding boxes.

All editors and coders should be given specific training for a week and they should practise until they develop an exhaustive knowledge of the questionnaire particularly the skip instructions.

B3.16 Data Preparation

When coded, the documents are passed to the computer department for data-preparation. The survey director should insist that the cards are punched and verified. The extra time and money involved is more than repaid by the increase in accuracy of the data.

B3.17 Tabulation, Analysis and Reporting of Results

After the data has been punched and before any substantive report can be written, the data has to be computer-edited. Some programs have inbuilt facilities for this while others have no specific features but errors can be detected through producing a one-way tabulation for each variable which will show up any wild codes or unexpected patterns in the data. With some programs, it may be possible to list the questionnaire numbers of such incorrect cases.

Whichever method is used, it is useful to have a computer printout of the data to compare with punch sheets. When errors are detected, it is necessary to determine if they are caused through faulty data on the questionnaire, errors in coding or errors in input.

Efficient administration and record keeping is essential when correct data so that the up-to-date file can be identified with 100% certainty.

A preliminary report should be prepared to describe the fieldwork and present the basic results for major sections with a minimun of complex analysis or evaluation. This report should be issued as quickly as possible.

The second report (or series) is the main one and in it the basic measures are evaluated in detail, more complex analysis presented and an assessment made of the extent to which the research has fulfilled its objectives.

The detailed technical report can be issued separately or as appendices in the main report.

Summary of Section B3: Planning and Organisation of Surveys

There are 19 recognisable stages in any survey :-

1. Defining the research objectives.
2. Establishing the Staff Structure
    - (a) setting up the research office
    - (b) obtaining space and materials
    - (c) recruiting office personnel
    - (d) setting up the organisational structure.
3. Selecting the Data-collection techniques.
4. Preparing the Timetable
5. Design the Questionnaire (or other collection instrument).
6. Preparing other Documents
    - (a) interviewers instructions
    - (b) coding guides
    - (c) control, expense, time sheets, etc.
7. Set up Analysis or Computing Stage
    - (a) establish contacts
    - (b) decide on type of analytical equipment
    - (c) set-up programs and computing procedures where necessary
8. The Sample
    - (a) select all stages prior to final stage
    - (b) assemble sampling form (mapping if necessary)
    - (c) select final stage sample.
9. Recruit Field-staff, coders, etc.
    - (a) recruit supervisors and interviewers
    - (b) train fieldstaff (if necessary).
10. Pilot survey.
11. Finalise all documents and Prepare Interviewers Assignments.
12. Brief the Field staff.
13. Fieldwork
14. Editing and Coding.
15. Data-preparation.
16. Create data-files.

17. Tabulation and analysis.

18. Report writing.

19. Publication of results.

B.4 SAMPLING AND RESPONSE RATES

B4.1 Introduction

This chapter is directed specifically towards the problems of sample design and is not intended to be a general manual on sampling (for these, see Bibliography). Technicalities and jargon are avoided as much as possible. The main objective of this chapter is to enable survey directors and researchers to understand the main issues and concepts, to have some understanding of the problems involved and to be able, therefore, to collaborate fruitfully with sampling experts in the design and selection of the sample, in order to meet the research objectives. The survey director specifies his research objectives and requirements and the sampling expert designs the sample in order to meet the requirements as closely as possible. In some cases, problems of sampling may make it impossible to fulfill the research objectives completely and in these cases it is necessary for the research director and sampling expert to discuss the problem thoroughly and arrive at a satisfactory solution.

B4.2 Purpose of sample surveys

To obtain information from all members of a particular group under investigation is :-

(a) expensive

(b) time consuming

However, it is not necessary to interview every member as statistical sampling theory states that by carefully selecting a sample (or subgroup) of units of enquiry data from them, we can use the data collected as estimates of the data values of the population in question.

The basic premise in sampling from a population is that the selection of a relatively small number* of units on a scientifically arranged random basis will provide a sufficiently high degree of probability that this is a true reflection of the population, that inferences can be made from the findings of the sample to the population. In other words, random sampling gives a 'cross section' of the population or a 'representative picture' of the population.

The purposes of a sample survey are :-

(a) to estimate certain population parameters - the average number of people who use a library or to delineate the characteristics of journal readers as opposed to-book readers.

(b) to test a research hypothesis - e.g. that academic humanities scholars tend to use books whereas scientists use current journals for research and current awareness purposes.

Naturally, a research project can be concerned with either or both of these objectives.

Sampling theory allows us to generalise from survey results to the population.

B4.3 Randomness

The important ability of being able to generalise from sample to population values rests on the principle of randomness and this requires that every member of the population (member = unit of enquiry) has first, a probability of being selected for the sample and secondly, that this probability is known beforehand and can be given a numerical value.

Therefore, samples chosen on these principles are known as random samples (the American term is probability sample).

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* small relative to the population under investigation.

Moser and Kalton (12) state that "randomness is at the base of all sound sample designs: these designs differ chiefly in the refinements introduced to minimise sampling errors."

In practise it is not always possible to use random sampling methods for a number of reasons.

In practise, sample size is dictated by practical consideration, by the amount of money available for interviewing and by the need to have adequate cell numbers in cross-tabulations. Other constraints upon the actual sample design include the type and number of interviewers and office staff available, time available, the location of interviewers, number of supervisors, availability of sampling frames and so on. It sometimes happens that constraints of this kind almost completely determine the sample design leaving no room for manoeuvre with a view to design optimisation. In most cases a compromise has to be struck between the theoretical considerations and objectives on the one hand and the actual constraints on the other.

This short discussion of the problems involved in sample design and the need to know as much as possible about the parameters highlights the importance of and necessity for pilot studies.

In practise, then, the majority of samples are designed with little or no reference to the elaborate methodology of optimisation which has been worked out by statisticians. Thus, while some rough calculations along the lines described above are often made as a guide, the final decisions are usually based on the "feel" of the situation, and the various organisational constraints. Although this practise is defensible for a one-off, ad-hoc survey, when a survey is repeated, the opportunity arises to improve the sample design based on the experience gained in the first survey.

B4.4 Random Sample Designs

B4.4 1. Simple random samples

In a design using simple random sampling, the N numbers of the population are numbered and n of them are selected by random numbers.

The selected unit is not put back into the pool before the next number is selected. In this simple case there is no necessity to calculate sampling fractions to assist in the selection, all that is needed is a table of random numbers and the number of units selected depends solely upon the number of interviews required.

B4.4 2. Systematic random sample

The use of random numbers to select each sample number is only feasible where :-

(a) a small number are to be selected.

(b) the population is small.

If the population is large, the actual process of giving each a unique number is tedious and time-consuming. In this situation it is usual to take a list of the population numbers and if it can be assumed that there is no periodicity or other nonrandom order in the listing, the sample is selected by :-

(a) calculating the sampling fraction. This is got by dividing the population size by the sample size = N/n. Thus if the population number 20,000 and the required sample size is 1,000, the sampling fraction is 20,000/1,000 = 1 in 20.

(b) A random number is selected between 1 and 20 (i.e. in the range of the sampling fraction). This number must be selected from a table of numbers and not thought up by the researcher. Suppose the random sample number chosen is 7.

(c) Then the person corresponding to that number is the first sample member (in this case, it will be the 7th person on the list).

(d) The sampling fraction is added to the initial random number and the person corresponding to that number is the next sample number. Then the sampling fraction is added to the number and we go on systematically through the population list selecting the sample members. In our example 7 + 20 = 27, so the 27th person is the 2nd sample member, the 47th is the third and so on.

Apart from the greater ease in compiling the sample composition, systematic sampling (sometimes known as quasi-random sampling) produces a more even spread of the sample over the population list than does simple random sampling.

B4.4 3. Stratification

The magnitude of the uncertainty of the sample results is determined primarily by the variability existing among the units in a population. Therefore, one way of reducing uncertainty and increasing the precision of a simple random sample is to increase the size of the sample.

However, in order to double the precision of the estimate, we need to quadruple the sample size - a very costly business.

Another method is to use stratification, one used in most sample designs.

Generally the population can be divided into sections or strata where the factor by which the population is stratified (or divided up into exclusive sections) depends upon :-

(a) the nature of the population

(b) the objectives of the survey.

A population, for instance, might be stratified by size of town, while within towns, a stratification factor might be the electoral districts, stratified by proportion of working class inhabitants in each. Universities and educational establishments might be stratified by subject or department or a company may be stratified by managerial, production and administrative staff.

Stratification does not imply and departure from the principle of randomness; the population members are divided into strata and then a random sample is selected from each stratum.

It has been pointed out that there is no gain in precision by stratifying by a factor not related to the subject of the survey.

It is only possible to stratify for a factor for which

(1) the population distribution is known

(2) is individually identifiable for every population member.

It is necessary to select at least two units from each stratum.

It is not necessary to restrict the stratification factors to one as multiple stratification can be used. For instance, the population can be divided into :-

(1) regions

(2) town/area population size groups

(3) within each town/area the electoral districts grouped into location

(4) the population within each location divided into female/male.

Thus we have 4 stratification factors in the above example. Farms might be stratified according to area, size and type of crop whereas industrial/business concerns might be stratified according to number of employees, product and department within each concern.

B4.4 4. Multi-stage Sampling

Where the population consists of a very large number of units spread over a wide area, a straight-forward sample (whether stratified or not) would cause immense organisational problems and result in an unnecessarily laborious task. For example, if the number of farms in a country is large then the sheer compiling of a list in order to stratify and select units would take a lot of time and office staff.

Therefore, to reduce cost, time and effort we can use a design which entails a random selection of differently sized and/or situated units at successive stages leading to a sample of the fixed units of enquiry. Thus this design is termed a multi-stage sample; the population is regarded as being composed of Primary Sampling Units (PSU's), each one being made up of second stage units and so on.

A sample is taken (with or without stratification) of the PSU's; then a sample (again with or without stratification) is taken of the second stage units and so on down the line until the final stage units with sampling being random at each stage (if possible).

For example, a national sample of individuals may be required.

At the first stage, a sample of administrative units is randomly selected (stage 1). Then within *each selected* administrative unit, a random sample is taken of towns (stage 2), within *each selected* town a random sample is taken of electoral districts (stage 3) then finally, for *each selected* electoral district, a sample is taken of individuals on the electoral roll (stage 4).

Another great advantage of the multi-stage design is that a sampling frame is required only for the *final* stage and even if one does not exist this advantage makes it administratively feasible for the survey team to compile their own for the final stage units.

Even where a sampling frame exists for the entire population, the fact that it is only required for the final stage units greatly cuts down the labour involved. The multi-stage design reduces cost and time in surveys without abandoning the principle of randomness throughout the stages involved.

B4.4 5. *Cluster Sampling*

In the above example, if *all* the individuals in each electoral district chosen in Stage 3 were included, the unit of enquiry remains the same (individuals) but the sample taken is one of *clusters* of individuals. It can be regarded as a special form of multi-stage sampling where the sample taken at the final stage is 100 per cent sample.

Some populations are not well mixed - people with different social and economic characteristics tend to concentrate in certain parts of a city or country, while businesses of a like type tend to be found together.

Clustering is used in an attempt to reduce field work costs. Another reason for using a cluster design is where no satisfactory sampling frame exists so that a listing of some kind has to be made and it is, therefore, better to confine this chore to a few areas or groups.

Clusters need not be natural aggregates and, again, in any one sample design, several levels of clusters can be used.

Clustering, because it includes or excludes complete aggregates of units tends to increase the sampling error. To reduce the errors, it is better to use a large number of small clusters rather than a small number of large clusters as clusters tend to be homogeneous. Also, taking this last point, it is desirable, wherever possible, to make the clusters as heterogenous as possible.

B4.4 6. Multi-phase or Filter Sampling

It might be desired to collect data on a large number of variables but cost, administration and response considerations may dictate that this can only be done on a small number of respondents and yet it is desirable to have as large a sample as possible especially for certain basic data. In this case the design could be a multi-phase one whereby a limited amount of basic information is collected from a large sample and more intensive data from a smaller subsample. The British Census tends to use this design whereby basic demographic information is collected from each household and a sample, usually 10% is further questioned on a particular topic.

Another design is to collect the same basic data from every unit and while each unit is questioned intensively on a further topic, the topic will vary between subsamples thus enabling the researcher to greatly increase the amount and type of information collected.

The design is particularly useful where the subsample represents a section of the population with special characteristics, for example, members of libraries, or in cases where the subsample would otherwise be difficult to locate such as a recently settled immigrant group or where it is desired to question individuals with special characteristics but it is not possible to identify those individuals from the sampling frame. Multiphase samples refer to the collection of data and not the selection and can therefore be included in any of the previous designs.

B4.5 Non-random Sample Designs

The next group of sample designs describe "non-random" samples; that is where selection is not made on any principles of randomness.

B4.5 1. Quota or Judgemental Sampling

A wide variety of procedures go under the generic term 'quota sampling' but what differentiates them from probability sampling is that, once the general breakdown of the desired sample is decided (e.g. how many men, women, age, groups, occupational classes and so on) and the quota assignments are allocated to interviewers, the choice of the actual respondents is left to the interviewers, hence the name 'judgement sampling'.

Quota sampling is a method of stratified sampling in which the selection within the strata is non-random.

Most quota sample designs attempt to produce representativeness by means of 'quota controls', by stratifying the sample to be chosen in terms of basic population characteristics about which information is known from census and other sources.

Thus, certain proportions of interviews will be allocated according to such proportions in the population under study as age, sex, town-size, etc., as well as specific controls being applied according to the subject of the survey e.g. control by educational achievements, membership of libraries, leisure interests, etc.

The main advantages are cheapness, quickness and administrative convenience.

No sampling frame is needed and there is no expenditure of time, effort and money to draw the sample; in addition it means that the fieldwork can take place earlier in the research process.

Its main weakness is the lack of the ramdomness principle and, therefore, the inability to generalise from the sample results to the population, any statements that are made from the data refer solely to the members of the sample. It is possible to use a multi-stage design selecting the intermediate units by random methods but as the final stage units are not randomly selected, the results are not generalizable even though the quota controls were set in order to produce a cross-sectional sample.

B4.5 2. Snowball Sampling

This is another method of selection where no sampling frame exists, where data for setting quota controls are lacking or where it is desired to interview a sample with similar characteristics as quickly and as cheaply as possible.

The first few respondents are asked for the names of their colleagues or co-members of their group, these are interviewed, asked for their friends, etc., and the process "snowballs".

It provides a good method of penetrating a subgroup for which no sampling frame exists especially those informal clusters of specialists often found in scientific and academic circles made up of people working in the same field or on the same research topic - the "invisible college".

For building up the sample, reliance is usually put on a number of key "reference persons", so it is obvious that such a design does not constitute a random sample design and that the technique must be regarded as highly individualistic. One element of uncertainty is introduced by the fact that there appears to be no way in which the few initial contacts can be selected by a system which guarantees the avoidance of all bias.

B4.5 3. Presenting Sample

In some situations where no sampling frame exists (whether physically or through the nature of the research subject) and where it is not possible to identify members of the sample before the actual interview situation, the 'presenting' sample method may be appropriate. Most applications have been in medical studies where patients are randomly allocated to experimental groups as they arrive, at the clinic or surgery, in other words as they 'present' themselves.

This method has been used in user study projects; in an investigation of library users, past researchers have stopped people as they enter or leave a library (13). The main problem is that an interview takes time and therefore there is no easy way for a sample interviewer to keep count of how many people passed during the time taken to conduct the interview. However, with two or three interviewers, this problem can be overcome; or an on-site controller may be employed.

B4.5 4. Area Sampling

Area sampling is basically multi-stage where maps rather than lists or registers serve as the sampling frame.

A map is divided into blocks by the use of a grid, which may be superimposed on the map by the research, or the researcher may use a grid already printed on the map by the surveyors. Again, in sampling from urban areas which have a road network in a grid pattern (as in the U.S.A.), the roads themselves form a grid and divide up the dwellings into blocks.

The blocks or grid-cells are numbered and a random sample of them is selected.

The boundaries of the blocks must be well defined to enable the interviewers to readily identify them. Streets, railways and rivers may be useful dividing lines where these can be used. If possible, the blocks should be made equal in population or the number of units in each. It is not necessary that the blocks should be of a square or rectangular shape, any shape of block can be drawn; the essential requirement is that they should be readily identifiable or rather that the final stage units of enquiry should be able to be allocated unambiguously to a particular block.

Area sampling is used as a substitute for a 'sampling frame' method of selection, or it might be used as a means of selecting earlier-stage units and using a sampling frame for selection as the last stage whereby saving time. Thus area sampling can involve a number of stages. In a multi-stage sample, a sample or large blocks (i.e. regions, large administrative areas) could be taken. Each selected first-stage block could be divided into blocks based on some smaller area and a sample taken of these and so

Wherever possible the blocks or areas in each stage should be defined to coincide with areas for which statistical information is available.

B4.6 Ad-hoc and Longitudinal Studies

Regardless of the type of sample design used, a major distinction in the type of survey is between the ad-hoc, 'one-off' or cross sectional survey and the longitudinal survey, where a sample is approached periodically for information.

It is possible to undertake a longitudinal series of cross-sectional studies where, although the data sought each time is on the same variables, a different sample is selected each time. Provided that the successive samples are selected by the same means with the same sample design from the same population, comparison between successive sample results is perfectly valid.

Alternatively, a panel of respondents is selected which is used in successive surveys (14). The problems of selecting a panel of respondents are no different from those for single surveys but there are particular problems of ascertaining sample representativeness. These problems stem from panel fall-off, mortality and conditioning.

Any survey has a non-response problem so that the first survey of the panel shares this problem in common with ad-hoc surveys but the non-response tends to continue and even increase as the same respondents are approached at successive intervals.

Again, the panel diminishes through the natural causes of death and movement away from the areas so that even if voluntary fall-off is no problem, the sample will gradually become unrepresentative as the population changes its composition through demographic movements.

Conditioning of the panel is a major problem so that panel members become used to the questions, are able to give answers in the light of what they think the researcher wants and by having the same topics asked of them actually become more aware of the topic, services or whatever is being investigated and alter their behaviour accordingly. Initially, many of a panel questioned on the library and reading habits will represent the general population, but by being repeatedly questioned about libraries, books, etc., may actually alter their behaviour and become library members, or use the other library services that they had no knowledge of until questioned by the researcher. Asking farmers about their knowledge and use of a Government Information Service may cause these respondents to increase their use of it or to increase their information requirements and therefore becoming untypical through the process of being interviewed.

One technique of combating the problems of increasing non-response, obtaining longitudinal data and minimising panel-conditioning is to use a Rolling Sample. A certain proportion of the sample is replaced each survey; for instance if a 25% renewal rate is chosen, an initial sample is chose and interviewed, at the next survey, 25% of the sample are omitted and replaced by a new 25% and so on. Once the number of surveys exceeds the renewal fraction, each panel member is approached N - 1 times, where N is the renewal fraction. In the above example, 1 in 4 (25%) is renewed each time so every panel member is approached 3 times.

The panel technique is very useful for studying trends or processes, for instance, the information seeking habits of research workers and the manner in which they become more proficient with research experience.

To summarise the type of survey using method of selection as the classification we have :-

(a) Random Sample Survey

1. Simple random sample surveys
2. Quasi or systematic samples (including presenting samples)
3. Multi-stage samples.

(b) Non-random Sample Surveys

1. Quota samples
2. Nonquota samples (stopping passersby, library users, etc. with no regard for quota controls)

Using time as the classification factor, we have :-

1. One-off ad-hoc study
2. Longitudinal study - different sample each time
3. Longitudinal study - panel survey.

These two classifications, of course interract so that one can have a multi-stage method of selection of a panel or a one-off survey using a simple random survey.

B4.7 Sampling Frames

There has been frequent mention in earlier sections of sampling frames. These are the lists of names, maps, registers or other population records (population in the statistical sense) from which the sample can be selected at each sampling stage. Every aspect of the survey process - coverage, size of sample, type of sample design, stratification factors used, etc. - is

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influenced by the sampling frames available. Lack of availability forces the researcher to use non-random sample designs.

Sampling frames that are frequently used include :-

1. Electoral rolls or registers
2. Rating valuation lists and records
3. Trade and commercial directories
4. Membership lists such as members or professional groups academic institutions, company personnel records, etc.
5. Year books
6. Maps

To be completely satisfactory from the point of view of use as a sampling frame, a list, register, etc., should include the name of every unit in the population and include it once only.

A number of different problems arise which affect the suitability of different sampling frames.

B4.7 1. Missing elements

This is where elements or units which are eligible for inclusion in the survey are not on the list. This can arise because the list is inadequate in that it does not cover the whole of the population. For example, the survey population may be designated as anyone aged 16 years and over, but the qualification for inclusion on an Electoral Register depends upon the age at which a person can vote and this may be 18 or even 21 years depending upon statute. Again, some people may be excluded from the Electoral Register because they are ineligible to vote - non-nationals, lunatics, bankrupts, etc., - yet they form part of the survey population.

The second way elements can be missing is through the list being incomplete or some people who are eligible to be on it, have not been included for various reasons. In Britain, eligible electors are placed on the list only if they fill in a special form; failure to register means that their name does not appear on the Electoral Register.

A way of dealing with this problem is to change the scope of the survey to coincide with that of the sampling frame.

B4.7 2. Out of Date

The list, map or register may be out of date in that it does not incorporate the latest amendments. In the case of population registers, it may happen that people who have died or moved still appear on the list while, on the other hand, movers into an area may not have registered. The British Electoral Register is compiled in the September/October of the previous year to which it is published (March/April) so that even at the time of publication it is 7 months out of date and just before being superceded by a new one, it is 18 months old. Then it may be advisable in many cases to postpone a survey a few months, if possible, in order to use the latest list.

Membership lists suffer from the same problem of updating as do maps particularly on the outskirts of developing towns where whole new suburbs can be built that are not marked on the latest maps (maps are notorious for being updated only at long intervals).

B4.7 3. Duplication

On some lists, a person may appear twice (this is sometimes true of businessmen on rating lists) but duplication often occurs when there is no one single list which is suitable as a sampling frame and two or more different lists have to be used.

B4.7 4. Blanks or Foreign Elements

This is where an element is on a list but not elegible for inclusion as a member of the survey population. One way this can arise was noted above, people dying or moving, but another is where the list has a wider coverage than the survey population. For example, the electoral register will include all adults eligible for voting whereas the survey is concerned with library members who form a minority of the listed adults. If the proportion of the element is small, they can be ignored.

B4.7 5. Clusters of Elements

This is where the elements of the list are clustered in some respect and not listed individually. For example, the survey might be concerned with individuals but the elements in the list are addresses of households (i.e. a cluster of individuals).

B4.7 6. Inconsistency

In some cases, the list may be drawn up with different formats and therefore there is inconsistency in its structure. One example, is the Electoral Register in the Irish Republic. In all urban areas and many rural areas the list follows the conventional pattern of listing individuals according to their street of residence and the number of their house. Within each electoral district, streets, are listed by order, within each street the houses are listed by the house number in order, either in ascending numerical order or by successive position in the street first along one side then along the other. Within each household the head of the household is listed first followed by the spouse then the children (if any).

But in some rural villages, the individuals are listed solely by alphabetical order so that streets and even families are mixed up.

Thus it can be seen that a general criterion for a list to be used as a sampling frame is that it should be adequate for the purposes of the survey; a given list may be adequate for one survey but not for another.

As well as containing the name of the units, a list should contain sufficient information in order that they can be located. For example, a list of adults is clearly inadequate unless it contains their addresses or places of work.

It is of great help, administratively, if the sampling frame is available in one central place with adequate working place and access is allowed to it readily.

B4.8 Non-response

Sampling theory is concerned with mathematical concepts and hypothetical situations where, for example, all members of a population are available for selection and if selected, automatically appear as a sample number. However, in real life, apart from the many practical problems involved with questionnaire design, recruiting of suitable staff and sampling frames, the one major weakness is that not all the selected members of a sample consent to take part in a survey.

In other words there is a non-response element in surveys the collected information is only a part of the total sought.

It should be recalled that a sample is carefully chosen so that it is representative of the population from which it is drawn but it is the sample in toto which is representative not any one element or unit. Thus if any members of the sample are not included there is a danger that the sample becomes unrepresentative and therefore its results will not be generalisable to the population. The lower the response rate, the greater the danger of the sample results being unrepresentative.

If the non-respondents had the same characteristics as the respondents there would be nothing to worry about. Unfortunately, experience shows that this is seldom the case, the non-respondents tend to differ materially in some respects from the respondents. The larger is the non-response rate, the greater will be its possible biassing effects and therefore the researcher must devote some thought and effort to reduce the non-response to a minimum. In addition if some information on the non-respondents and their characteristics is obtained, this enables some estimates to be made of the likely extent of non-response bias.

B4.8 1. Types of Non-response

Not all the sample members who cannot be interviewed are counted as non-respondents as some units will be outside the population. This includes people who have died (institutions/firms that have closed), non-existent addresses and demolished buildings. They should be regarded as blanks and should be subtracted from the sample size before calculating the response rate. Substitutes for them can be taken in order to keep up the numbers. The types of non-response include :-

(a) Movers

A sample of individuals, householders, members of an institution, will always include a proportion of people who have moved to other addresses, locations, etc. as any list will be out of date as soon as it is published. If the new location can be located and it is nearby, an attempt should be made to interview the mover. However, in some cases where selection was made on the basis of inhabiting a particular location or niche, the new person can be interviewed.

For example, if the sample units are librarians holding specified posts, the present incumbent of a post can be interviewed.

(b) Unsuitable for Interview

Most lists include people who are infirm, deaf, unfamiliar with the native language, etc., so that any sample selected from these lists will include a proportion of these units. There are generally excluded but the interviewers must be given strict instructions about whom to include in this category.

(c) Away

Some units will be absent for a number of reasons - illness, holidays or on business. If the interval of absence is longer than the field-work period then these cannot be interviewed.

(d) Out at time of call

The individuals should be recalled on. These include respondents who find it inconvenient to be interviewed when the interviewer initially calls and an appointment should be made to recall.

If there is no one present when the interviewer calls, enquiries of the neighbours can sometimes elicit when the respondent is likely to be at home.

(e) Refusals

Generally some people refuse to co-operate and to be interviewed. However, if the purpose of the survey is explained, why their veiws are so important to the success of the survey and that their information is confidential and will not be divulged to anyone outside the research team, few people refuse to co-operate. The use of experienced and trained interviewers greatly helps in achieving a high rate of response. It helps to keep the questionnaire as short as possible and to pay attention to maintaining motivation throughout the interview; these are factors which should be tested in the pilot.

B4.8 2. **The Size of the Non-response**

Naturally this varies with the type of survey, the population covered, the quality of the interviewers and the sponsoring body.

Generally in interviewer surveys the aim should be to achieve a response rate or at least 75%. Postal and self-administered questionnaire surveys generally have lower response rates than interviewer administered ones but again the aim must be to achieve as high a return as possible and a return below 60% should be regarded as unsatisfactory.

A standard procedure should be laid down in order to minimise non-response. In the case of interviewer surveys, the interviewer must be instructed to make a specific number of recalls before classifying a sample member as a non-respondent. Usually it is three recalls as recalls take time and money and the extra return falls off rapidly after 3 or 4 calls.

In the case of postal questionnaires, if a reply has not been received to the first posting after 3 - 4 weeks (this will naturally depend upon the postal service of individual countries), a reminder letter is sent out. With the third reminder, another copy of the questionnaire is enclosed and sometimes a fourth reminder is sent. Each time a questionnaire is sent a stamped, addressed envelope is enclosed for its return.

It has sometimes been found helpful to personalise the introductory letter by writing the respondent's name at the head and to put stamps on the return envelopes instead of pre-paid postage. Where there are different classes of postage, it is advisable to use the higher one on the return envelope.

The postal questionnaire should be as short as possible (preferably not longer than 2 double sides) and should have a maximum of precoded questions and a simple structure. The introductory letter should be friendly, brief and explain the purpose of the survey adequately.

Finally, a subsample of the non-respondents should be selected and strenuous efforts made (preferably by personal interview) to obtain some basic information in order to compare their characteristics with the non-respondents in an effort to assess the extent of the non-response bias.

B4.9 User Studies and Particular Problems of Sample Design

It is difficult to discuss problems of sample design in a vacuum as it were, that is, outside of a particular research project. Only in a particular research project with its specific objectives and target population, can problems be discussed in detail as the problems of sample design differ so markedly between populations, between projects and between countries that they need to be linked to the particular rather than the general.

In many ways the simplest survey to organise is one based on householders whether the household or the individual is the unit of enquiry as there is the possibility that a list of households exists. Where one does not exist, the researcher can use area sampling selecting blocks and either sampling within the final stage blocks or treating each as a cluster.

Within the final stage blocks, if a sample is required and no list is available, provided that the blocks are sufficiently small, a listing of buildings or inhabitants can be made by fieldworkers prior to selecting a sample. In many countries, houses may not be numbered nor will there be street names, in these situations, after a block has been selected, an interviewer can be given instructions how to select a dwelling (say, every nth in the street) and, if an individual is required within the dwelling strict instructions on how to select the required individual (using a Kish table (15)).

Surveys of agricultural users can profitably use the area sampling method while the knowledge of agricultural extension officers will prove valuable in drawing up lists to use as sampling frames. In a survey of information users within institutions, whether commercial or educational the first priority is to obtain an up to date list of the institutions preferably with a list of members/employees though this is not strictly necessary at the first stage, but some information is required such as number of employees/members of some other criterion so that the establishments can be classified by size (no. of employees, value of output, etc.). Given some criterion by which the establishments can be classified (and used as stratification factors), fieldworkers can compile a list of members/employees in the selected establishments.

In commercial and industrial establishments it may not be necessary to list all the employees as many of the employees have routine jobs and the researcher may only be interested in the personnel who are in managerial/executive positions who need information in order to determine future plans, policies, etc.

Problems arise when the users of a particular service are being studied. Membership lists of services such as libraries may be out-of-date as they may not be corrected at regular intervals (except for those services where an annual subscription is needed) so that a sample of them would contain a high proportion of blanks or foreign elements, movers, etc., and to base the survey on sending interviewers to their address would greatly increase costs and time. A postal questionnaire would cut costs but would not counter "out of date" ness of the sample frame apart from having the other disadvantages of this method.

This is one reason why many surveys, of users of services such as libraries use the method of approaching actual users as they enter or leave the library. This can be a useful method provided some thought is given to the problems of random selection. If simple data are required on library use, every person (or every nth person) who enters the library can be given a card or form on which are printed a few questions and asked to fill it in before they leave the library. As the number of forms handed out is known as is the number filled in, this method at least has a measure of the non-response rate though nothing can be known about the characteristics of the non-respondents.

Users of a parituclar service, such as inter-library loans, can be asked some questions when they apply for that service such as why they are using that particular service, other services used, experience of them, etc. Sampling can be used in order to minimise the inconvenience to the public. But this method is only of applicability to services where the user has to approach someone in order to avail himself of that service of fill in a required form. Where the services can be used without having a request, fill in forms, etc., it is of little use. For instance, in the use of a library catalogue, people can be observed using the catalogue but why, their success-rate, etc., cannot be observed; these are facts which can only be elicited by questioning. Users can be approached but then we are back with all the problems of interview surveys again.

Where users such as the members of a particular society, receive journals through the post, a questionnaire can be enclosed in one particular issue but here we are faced with all the problems of postal questionnaire surveys. There is the additional problem that unless all the members of an occupation/profession are members of that society, the membership list is an inadequate sampling frame.

If the same population is to be used for subsequent follow-up studies, then it would pay the research team to devote a lot of time and effort, in the initial stages, to compiling an adequate sampling frame. This may mean collating serveral lists and checking them for coverage or it may mean going out into the field in order to compile a list themselves.

B.5 CONSTRUCTING THE QUESTIONNAIRE

B5.1 Introduction

Whether postal or personal interviews are used the data instrument - the questionnaire - has to be compiled.

Practical experience of actually compiling questionnaires is the best way to develop this skill as it is one that cannot be taught from books.

Every investigation presents new and different problems. Even when the researcher uses standard questionnaires devised by other researchers and in other surveys, it is necessary for the researcher to understand the problems involved in questionnaire design. A standard questionnaire, to be generally applicable, is of necessity not designed to meet the particular problems of any one specific country or area of enquiry so that it has to be amended, corrected and added to in order that it can be of particular applicability.

In many cases, the researcher may want to add questions, delete irrelevant ones, or choose between alternatives. Even where this is not desired, it will be necessary to reword questions to take account of local meanings and ways of stating things.

Because of these considerations, standard questionnaires usually take the form of a skeleton, a series of essential questions to which the researcher adds his own. In many cases, alternative forms are given as the socio-demographic conditions may differ markedly between contries and regions, particularly with regard to economic and educational levels so that it is necessary to have alternatives which are applicable to particular levels of development.

Another feature of some standard questionnaire sets is to have 'modules', a module being a set of questions on a particular topic so that a questionnaire can be compiled by choosing and combining subject modules so that the researcher can 'tailor' a questionnaire to his particular research objectives and situation.

Specimen questionnaire modules are given in the Appendix, but as the researcher will have to combine and modify them to suit his own particular environment, it is necessary to consider the construction of questionnaires in general. As it is assumed that most user-studies surveys will use the formal type of interviewing with a highly structural questionnaire, that is the type which will be discussed.

B5.2 General Design Considerations

A questionnaire is a series of questions requiring to be answered in a certain order and manner and therefore it should contain clear and unambiguous instruction on how the questions are to be interpreted and filled in.

It is important to make clear which questions are to be answered by whom; if certain questions refer to a restricted class of respondents, such as married couples, this must be clearly stated before the question and it must specify how the excluded respondents are to be treated, in other words, which is the next question that applies to them. It is advisable, as well as printing instructions such as :-

"IF NOT MARRIED GO TO Q.5 OTHERWISE ASK Q4."

to have pathways and arrows printed showing the appropriate action to take, e.g.

"IF NOT MARRIED GO TO Q.5 OTHERWISE ASK Q.4."

Q.4 ....

Q.5 ....

As well as being a recording device for the interviewer, the questionnaire is an information store and is handled by office and computing staff, in the design the convenience of these other people must be considered.

The layout and printing should be such that editing and coding can be facilitated and so that answers to specific questions can be quickly picked out.

Questions should be clearly separated and attractively laid out and wherever possible answer-codes should all be under each other down one particular part of the page. It assists coding (and punching) if the answers can be pre-coded as much as possible on the questionnaire and the card/column number given for each answer. However, if the considerations of the interviewer and office staff clash, the former should take supremacy as it is the interviewer who has to apply the instrument in the field.

B5.3 Determine Subject Matter

The first step in compiling a question is to determine the research objectives, or the problem to be tackled and, therefore, the subject matter of the research project. Only then can consideration be given to the specific questions to ask.

The main mistake is to ask too much, to ask everything that may be relevant and not to be specific enough. It is considered by many that the length of the questionnaires affects the response rate and the morale of the interviewers, both declining with an increasing questionnaire length. It is generally held that an interview should not last much longer than 30 - 45 minutes. On the other hand, the questionnaire must not be too short as not to collect the required data. The questionnaire length is one factor that is most practically tested by a pilot survey as well as the relevance of specific questions.

B5.4 Types of Questions

One of the ways of categorising questions is into :-

(a) closed or pre-coded questions

(b) open-ended questions.

The first refers to questions where the alternative answers are printed on the questionnaire so that the interviewer either rings a code number or ticks a box or space next to the appropriate response.

e.g.

Q.1 How often do you read journals connected with your work?	every day	1
	1 - 7 times a week	2
	1 - 3 times a month	3
	less than once a month	4
	Other (specify)	5

The simplest type of the precoded questions is the dichotomous question which, most often merely requires the answer 'YES' or 'NO'.

e.g.

Q.1 Do you read journals connected with your work?	Yes	1
	No	2
	N.A.	3

Provision should be made for the recording of answers which are not applicable (N.A.), missing values and "Don't knows' (D.K.). Some researchers print D.K as a precoded answer but others consider that giving the respondent the opportunity to reply 'don't know' increases the number of D.K. responses so that they give provision for non-standard answers by printing "other - please specify" or 'N.A.' (Not Applicable).

The question may require a single and mutually exclusive answer such as the frequency of reading but this is not a necessary condition of precoded answers, as it is possible to have a multiple question where the respondent may give two or more answers.

e.g.

Q.2 Which of the following library services have you used in the last month?

Borrowed book	1
referred to book	2
read periodicals	3
used card catalogue	4
used photocopier	5
used reference section	6
none	7
other (please specify)	8

....

If the respondent is required to answer a multiple choice question from memory and unprompted, the interviewer records the response given in the list of possible responses printed on the questionnaire without reading out the alternatives (whether one answer or more is recorded depends upon if the question is a single or multiple response one). If the respondent is to be prompted the interviewer reads out the possible answers, if the list is long, the alternatives are listed on a Prompt Card from which the respondent chooses his response.

In an open-ended question, no alternative and precoded answers are given to the respondent instead the respondents' answer is recorded verbatim (whether fully or summarised) on the questionnaire by the interviewer and the answer is coded later in the office and not at the time of the interview. This feature - the time of coding - is the crucial difference between open-ended and closed questions not the form of answer given by the respondent as the respondent may give a long, discursive response to a precoded question and the interviewer allocates the response to one of the given codes at the time of interview.

Open-ended questions are used when the researcher wants more detail than is possible with a precoded answer as the act of coding is a summarisation and if this is done in the field, the detail is lost whereas if it is done in the office, the original response still exists in all its detail.

As well as using open-ended questions where the greatest detail and depth of response is required, they are used when the researcher does not know all the possible alternative answers to a question and therefore cannot provide precoded answers. The pre-testing state of a questionnaire tend to contain a lot more open-ended questions than the final questionnaire as the discursive answers from the pre-tests are used to construct the codes for the final precoded version

Another way of categorising questions describes the type of data collected

1. factual
2. opinions, attitudes and values

Factual questions seek facts :

"What age are you?"

"What is your job?"

"When did you leave school?"

It may be that some answers to factual questions are inaccurate, vague, deliberately falsified or a result of wishful thinking, but this is irrelevant as it is the type of information sought that labels a question as a factual one.

The non-factual questions (often called opinion questions) elicit data which is more than a fact, they could be concerned with the respondent's opinion about a certain event or object, about the respondent's attitude towards something or a measurement of a respondent's set of values.

As opinions, attitudes and reason questions tend to be more discursive, than factual ones - a respondent may have a number of reasons for belonging or not belonging to a library whereas his membership is a dichotomous fact the categorisation into factual/opinion questions tends to be strongly correlated with the categorisation into closed/open-ended questions.

Answers to opinion questions are more sensitive to wording and the manner of asking (tone of voice, emphasis, etc.) than factual questions so that questions on the same subject asked in different ways will seem to elicit different opinions and answers.

One common and useful divise which utilises the advantages of both the factual/opinion questions (and often the closed/ open-ended one as well) is the phrase the initial part of the question as a factual one than to follow with an opinion/attitude one so that the researcher obtains both the necessary facts and the greater depth and detail which throws light on the respondent's reasons for behaving in a certain way.

For example :-

Q.10 (a) Have you ever used the Government Information Service? YES/NO
(NO go to Q10d)

(b) If YES
Regarding the last time you used it, was the service?

very satisfactory	1
satisfactory	2
unsatisfactory	3
very unsatisfactory	4
N.A.	5

(c) Why do you say this

Now go to Q.11

(d) What are your reasons for not using it?

IF NOT FULLY COVERED ASK ABOUT

alternative sources of information such as friends,
books other services used.
knowledge and awareness of the Government Service.

The above example shows the combination of factual/opinion questions, closed/open-ended questions and the need to print explicit instructions for the interviewer detailing which is the next question to be posed and the type of prompts to be used.

In the drafting of the questionnaire, sufficient space should be left below open-ended questions so that the interviewer has ample room to record verbatim response. Interviewer-administered questionnaires should be printed on one side of the paper only and fastened at the top of the page so that it is easier for the interviewer to handle in the interview situation especially as the interviewer should have a stiff card or clip-board on which the questionnaire can be rested while it is filled in. A useful supplementary advantage of having the questionnaire printed on one side of the page only is that the interviewer is able to use the back of the preceding page as a continuation sheet on which to record particularly verbose responses or to jot down notes regarding the interview situation, how the respondent reacted to a particular question, tone of voice and so on.

B5.5 Question Wording

It has been repeatedly stressed above that the actual wording of a question is an important factor in determining the questionnaire's success whether measured by the overall response rate or by the quality and usefulness of the information gathered. Ask vague questions and the answers will be vague.

The wording of the intorduction to the survey must be worded with care as it has to :-

(a) inform the respondent of the purpose of the survey

(b) inform the respondent of the sponsoring body

(c) be 'interest arousing'

The respondent has to be reassured that the interview will not take up too much of his time, be 'frightening' in the sense of asking for information that he does not possess (psychologically people are afraid appearing ignorant or unknowledgeable and to mask this they either 'make-up' answers or refuse to co-operate) and be aroused or interested in actively co-operating by agreeing to answer the questions. Once started, most respondents continue with the interview to its end, it is in the first few minutes when the interviewers is explaining about the interview and endeavouring to establish good rapport with the respondent that determines whether the respondent will remain so or become a non-respondent by refusing to be interviewed. Once established this rapport and co-operative interaction must be maintained throughout the interview and appropriate wording of questions can help in this by ensuring that the interst of the respondent is retained and that, as the interview progresses. he becomes interested in it for its own sake.

It is desirable that the questions should be short, simple, unambiguous and refer to only one topic at a time, it is better to have a series of questions each covering one topic or aspect of a topic rather than a single complicated question.

B5.6 Simple Language

In wording the question, it is necessary to bear in mind the population being studied so that the questions can be worked in a form readily understood by the respondents. In a survey of a profession or specialist group, the researcher can, and should, use the technical phrases and jargon used by the study population. In studies of the general population, however, jargon and technical terms should be avoided and the aim is to phrase the questions in the everyday language used by the people themselves. This may mean printing different versions of the questionnaire for differently-educated sectors of the population or perhaps for different regional or cultural groups. Where this is not feasible (it may not be possible to differentiate sample-members from the sampling frame), the interviewers should be briefed to alter the wording of questions appropriately according to the impressions obtained during the interview situation itself.

The more the questions sound like ordinary conversation, the better will be the flow of the interview. The reaction of typical respondents must be sought; in a study of a specialist or professional group, this will be members of the group while in a study of the general public this can be done by informal talks and group discussions with 'average' respondents. In addition the wording and phrasing should be tested by holding pre-tests and pilot surveys.

In user studies one particular problem to guard against, is, the different interpretation given to the word 'book' both regionally and internationally. Some people restrict the term to a novel, text or reference book, etc., while others include magazines and journals in their term. Therefore, the distinction should be clearly stated, for example

> "During the last week, how many books have you read that is , excluding journals, magazines and periodicals,"

This example leads on to the next point.

B5.7 Simple Questions

As well as the language, the question should be as simple as it can possibly be without leading to any loss of information. The danger is to make questions too complicated, and too general.

For example a question such as :-

"In the last month, how many hours did you spend reading?" is far too complicated, not in its wording, but in its terms of reference; does 'reading' include books, magazines, newspapers and again, books connected with the respondents occupation, or leisure reading? Too many facts are involved in the question and a series of simple questions should be asked in preference to one complicated question, e.g.

"During the last month, how many hours have you spent reading?

(a) books connected with your job ___
(b) journals and periodicals connected with your job ___
(c) books for leisure and amusement ___
(d) journals and periodicals not connected with your job ___
(e) newspapers ___
(f) other forms of reading material ___
(please specify) ....

Another complex concept, though it appears to be covered by a simple question, is that of social status classification. In America, social grading is an amalgamation of occupation, education and income. In Britain occupation alone tends to be used but even here the issue is one that is complicated by the ambiguousness of occupational terms. For instance, 'engineer' can be used to describe a person with professional and academic qualifications at one extreme and a self-taught backstreet mechanic on the other and all the grades in between. Therefore, if possible the occupational question should seek information on :-

- occupational term used by the respondent
- professional or other training

- employed/self-employed
- if employed, if in a supervisory or managerial position and number of people supervised
- if self-employed, number of employees.

B5.8 Specific Questions and Vague Words

This has been touched on in the previous section when it was pointed out that all too often general questions are asked when specific information is required.

A question "Do you often use a library?" is a too imprecise on a number of counts. One is that the term 'use' is not sufficiently precise, what kinds of usage is the researcher interested in - borrowing books and journals, using the reference section, using the library as a reading/study centre, using the other services and so on. All these points should have a specific question about them.

Again the question is imprecise as it does not specifically state which library the question refers to - the central public library, a branch public library, school or college library or a works library and so on.

The above question can be generalised by asking "How many times in the last month have you visited the central public library?" (having first ascertained that the respondent has been to a library) then asking a series of questions on specific services used. Even when general questions are used it is essential to know the reference frame used by the respondent so that a favourite device is to follow a general question by a probe 'why' type of question (we saw earlier that this also is used after precoded questions to elicit more details and depth on a particular topic).

B5.9 Ambiguous Questions

Ambiguity is an aspect closely related to vagueness but it is still possible to ask questions on specific topics and yet to be ambiguous.

For example :-

"Do you read textbooks and journals?"

The answer "YES" could mean that the respondent reads both books and journals, reads books only or reads journals only. This is another case where two questions should have been used.

Ambiguity can arise by not making clear to whom the question specifically applies. If a respondent is filling in a questionnaire on behalf of his department does the question :-

"Do you read trade journals?"

mean the respondent or the department as a whole?

A better wording would be :-

Do you personally ...." or "Do you or any member of
your department ....?"

B5.10 Presuming Questions

Questions should never make assumptions about the knowledge, attitudes or behaviour of the respondent. After all, society approves of certain types of behaviour, disapproves of others while some, though not actually disapproved of, is generally regarded as good or bad. This is particularly true in the case of being educated, cultured and well-read; it is thought preferable, in many societies, to be interested in culture - music the arts and 'good' books. Therefore, unless questions are carefully and neutrally worded, there may be a tendency for respondents to state that they have certain knowledge and attitudes or, behave in a certain manner because it is regarded as 'desirable' or socially approved. One case in point is reading:

in many societies reading is regarded as a desirable attribute as opposed to being a necessary one, and therefore a question asking for reading habits by asking which types of books does the respondent read could lead to biassed answers in that more respondents state that they read than actually do or state a preference for 'good literature' when in fact they prefer the 'low-brow' type of fiction.

One way to overcome the value judgements complicit in questions is to make the question an impersonal one and to present both sides of the picture, for example :-

"Some people like to read, others regard it is a complete waste of time while others have not learned to read, now concerning yourself

(a)	Can you read	YES/NO (NO go to Q..)
(b)	Do you think reading is a waste of time	YES/NO
(c)	Do you like or dislike reading	LIKE/DISLIKE (go to Q)
(d)	Do you read	

and so on ....

Even when the knowledge, attitude or behaviour is not one with an inherently large amount of social approval/disapproval built into it, a question should not presume that the respondent possesses or does it. All such questions should be preceded by a filter question. For example, a question should not be asked regarding the respondents use of a particular library without prior filter questions such as :-

"Q.11 (a) Do you belong to the University Library YES/NO
(If NO go to Q..)
If YES, then ask:
(b) How many times have you .... " etc.

In the above example, a supplementary filter question could ask, those respondents who are not library members, if they had ever belonged to the library.

Before a question is drafted, it is always a good idea for the researcher to ask himself "How can the respondent be expected to know that?"

B5.11 Leading and Loaded Questions

'Loaded' words or phrases are those which are emotive and have a large amount of value judgement built in and therefore bias response in one direction or the other. It was pointed out earlier that 'reading' is a concept loaded with societal approval, while a question such as :-

> "Should children be encouraged to read good literature?"

will obtain a much more biassed answer than :-

> "Should children be encourage to read? YES/NO
> If YES What type of books? ... "

The leading question is one that encourages or prompts the respondent to answer in a certain way and it should be avoided; questions should be worded as neutrally as possible and if it is not possible to word a question without giving an indication of the possible responses then all the possible respnses should be included and given equal weight in the question.

> "Have you used any of the library services, such as the reference section or current awarness service?"

prompts the respondent to reply in the affirmative and to name only the services stated in the question.

Care should be taken to avoid wording questions so that undue emphasis on a word or phrase could alter the meaning (this is an important feature which should be emphasised at the interviewer's briefing). Payne (16) shows how emphasis on each word can give five different meanings (and therefore answers) to the question "Why do you say that?". If any word or phrase is to be emphasised by the interviewer, it should be underlined on the questionnaire.

In addition to leading words, the general context of a question, the content of prior questions and the whole tone of the questionnaire might lead a respondent to reply in a certain directon. Even the lack of filter questions (therefore presuming certain knowledge and behaviour of the respondent) can encourage biassed responses.

B5.12 Time Periods and Memory Recall

Most surveys wish, at some point in the questionnaire, to find out how often the respondent does or did a certain thing, for instance, how often the respondent reads and how much.

There is no universally-accepted way of wording such frequency questions, each researcher preferring his method but there are certain general considerations to be borne in mind.

On the one hand people do not think in precise quantitative terms and faulty memory recall certainly reduces the precision of recollected numerical frequencies. People tend to think in general terms, they round off numbers to conventional cutting points. As cigarettes are sold in packets of 10 or 20, respondents tend to answer in multiples of 10 or 20 when asked their daily consumption.

On the other hand, people, during the course of everyday conversation tend to use terms such as "often", "sometimes", "rarely" or "a lot" instead of a definite number. However, different meanings attach to these terms - one man's "often" is another man's "rarely" - so that while questions on frequencies should use these terms, it is necessary to have a supplementary question in order to ascertain the respondents numerical frame of reference, for example :-

"Q.15 (a) Would you say that you read fiction books,

a lot	1
sometimes	2
rarely	3
never	4
N.A.	5

(NEVER and N.A. go to Q.16)

(b) (codes 1 - 3)

On average - how many would that be a month? ☐

(c) And, taking last month, how many books did you read? ☐"

The Law of Large Numbers tells us that the abnormal behaviour of some respondents during the time-period in question will cancel out and we will be left with a picture of the average behaviour. Of course, selection of the time at which to conduct the survey is of crucial importance, it should be as normal a time as possible for the respondents and bearing in mind the subject matter. Questions on the use of the university library by students in the month of August will lead to gross underestimates.

The choice of the length of the time-period raises problems. A short time-period may lead to biassed results as behaviour in one short period may be untypical, although a longer time period may lead to an averaging out of such untypicalities, the longer is the time period the greater the problem of faulty memory recall. Regarding recall, another important factor is the importance of the event to the respondent. Significant events, will be remembered while routine or unimportant ones will be forgotten; again selection may take place depending on the emotional content of the event, disturbing or unhappy memories tend to be suppressed.

B5.13 Hypothetical and Personalised Questions

Questions of the type "Would you use a library if one was built?" are of very limited value. People tend to give affirmative answers to such types of questions as most people would like to try anything once so there is no guarantee that their actual behaviour would accord with their statements about their potential behaviour. Questions should be related to people's actual experiences. Where it is necessary to plan a future service based upon estimation of potential market demand, such questions may be necessary though their disadvantages must always be borne in mind and they should only be used with other forecasting techniques such as trying to identify the type of future use based on an examination of social and demographic characteristics of users of similar services and using such a typology as the population under investigation.

B5.14 Question order

Before writing down the questions, it is helpful to plan the outline of the questionnaire by means of a diagram or flow chart indicating which questions are to be answered by whom, to ensure that the questions are in logical and meaningful sequence. This should also be done after the questionnaire is drafted to ensure that no errors have crept in.

The introduction should be geared towards explaining the objectives of the research and obtaining the respondents co-operation. The first few questions should be geared towards increasing the motivation and towards setting the scene and getting the respondents thinking about the subject matter under investigation. It is important that the first question should be one which the respondent finds enjoyable and easy to answer, it ensures that no matter in what state of readiness the respondent was when first approached, they start upon the question proper from the same base.

Questions should go from the easy to the complicated; if there are any complex questions, questions requiring thought, intense recall or embarrassing topics, they should be in the latter part of the interview when rapport should be at its highest and refusals less likely to occur.

Questions should always go from the general to the particular, if necessary by having a series of steps or sections which 'funnels' respondents towards the particular and successively excludes or 'filters' off those to whom the particular question is inapplicable.

Interviewers instructions should be clearly printed on the questionnaire so that there is no uncertainty of the action to be taken in the case of conditional and filter questions. Some researchers, as well as printing clear instructions like to print arrows guiding the flow of questions while others box round the conditional questions.

For example

I "Q.13 (a) Do you like reading novels?" YES: 1 (GO TO Q13 b)
(b) What type of novels: NO: 2 (GO TO Q14)

____

____

NOW GO TO Q15

Q.14 Why do you say that? ______________

II "Q.13 (a) Do you like reading novels? YES: 1
(b) What type of novels: NO: 2

____

____

NOW GO TO Q15

Q.14 Why do you say that?"

It should be printed on one side of the paper only to assist in filling in and to enable the blank sides to be used by the interviewer as continuation note sheets.

Plenty of space should be left for the verbatim recording of answers to open-ended questions and for the ringing of codes. With precoded questions, it assists the interviewer if the codes are printed underneath each other down the same section of the page.

Questions are usually printed in lowercase type and anything else that the interviewer has to read out whereas INSTRUCTIONS TO THE INTERVIEWER are printed in upper case or in italics.

Postal questionnaires need to be very attractively laid out and presented as there is no interviewer to establish rapport and this has to be done through the introductory letter and the questionnaire's appearance. Postal questionnaires should be kept very short and the questions expressed in simple language. The respondent may find it easier to tick boxes than to ring codes and the use of open-ended questions should be kept to the very minimum (if they cannot be eliminated completely).

Probes cannot be used and it should always be borne in mind that the respondent can see all the questions before starting to record his replies.

B5.16 Other types of Questions

1. Checklists

These are usually lists of attitudes or events which have to be rated in verbal tems. For instance :-

"SHOW CARD A

(a) which of the following library services do you personally use the most?

(b) is better for keeping you aware of new developments?

(c) provide the most comprehensive service?

(d) could be stopped without detriment to your work?

	Use Most	Better for Awareness	Comp. Service	Could be stopped	None
S.D.I	1	1	1	1	1
Current awareness	2	2	2	2	2
Provision of Journals	3	3	3	3	3
Specialist subject personnel	4	4	4	4	4
Book issues	5	5	5	5	5
New Acquisition sheets	6	6	6	6	6

2. Inventories

These are usually self-compiled and are therefore used in postal questionnaires and handed over to the respondent by the interviewer for the respondent to complete, though they may be read out and the answer recorded by the interview in the appropriate cell.

They consist of a list of items, for instance, interests or activities and the respondent is asked which he is aprticularly interested in or when he last took part. For example :-

"Q17 I am going to read you a list of events and places and I'd like you to tell me when you last took part in them or went to it

	Within last 7 days	1-3 weeks ago	1-5 months ago	6 months but under a year	1 or more years	Never	D.K.
Went to cinema	1	2	3	4	5	6	x
Went to theatre	1	2	3	4	5	6	x
Went to concert	1	2	3	4	5	6	x
Went to public library	1	2	3	4	5	6	x
Went to football match	1	2	3	4	5	6	x

3. Ranking

Where items have to be placed in order with regard to some aspect or judgement, a ranking question is used, for example the respondent could be asked to rank journals in order of preference. Any number of items can be used but the consensus among survey researchers is that the number should not exceed ten and preferably not more than six as people find it hard to discriminate between a large number of items in any meaningful way.

4. Ratings

These are similar to rankings but whereas in making the respondent have to choose between a number of items, in ratings he chooses a phrase or attribute which is nearer his opinion of a particular item.

For example :-

"Q19 Could you look at this card and tell me which of the statements on it comes nearer to your opinion of Journal X?" (HAND CARD B).

always informative and up to date	1
always interesting	2
sometimes intersting	3
of no use to me	4
no opinion	5
D.K.	6

With this type of instrument we are touching the subject of Scaling.

B5.17 Prompt Cards

These can be used for precoded questions where the number of alternative answers is large. The card contains a list of alternative responses and the respondent indicates to the interviewer the relevant one. When the study population has a low literary rate, the cards may be in the form of pictures and cartoons.

B.6 PROCESSING AND ANALYSING THE DATA

B6.1 After the fieldwork stage is over, when all the information has been recorded on the questionnaires and they have been returned to the head office, the next stages are editing, coding, data analysis and the writing of the report.

B6.2 Editing and Checking the Questionnaires

Questionnaires are edited and checked to detect and eliminate, as far as possible, the erroneously coded answers in the questionnaires.

The interviewers should be instructed to check and edit their questionnaires before sending them to the supervisor or head office, and then, in the office, they must be thoroughly edited and checked before being coded.

The points that should be checked are :-

(a) Completeness

The first point to check is that every question that should have been answered, has been answered.

(b) Accuracy

Inconsistencies in the answers should be checked. For instance if the respondent stated that he read 3 journals a month and later when asked the titles, there should be the titles of 3 journals recorded.

It may be possible to resolve clear inconsistencies by the general tenor of the answers so that the inconsistent ones can be altered in the office but it is important only to alter inconsistencies which are errors in recoding as some inconsistencies are genuine and give valuable information on the ambivalent nature of some people's attitudes and statements.

In accuracy another part to be checked in the office is whether the name on the questionnaire corresponds to the name on the assignment list or, if the interviewer has to make some random selection procedures, that it has been done correctly.

(c) Uniformity

The checking staff should check that all the interviewers have intepreted the questions and especially the instructions in the same manner.

B6.3 Coding

After being edited, the questionnaires are ready for coding. A code is a number and each distinct category of answer to a question has a code number. A simple example is sex of the respondent. This can be male or female, and each is given a unique code number, for instance MALE = 1, FEMALE = 2 so that for every person that has stated that they are male, the code 1 is written opposite the question.

The document that should be compiled before any coding takes place is the coding frame or coding guide.

This is a document which resembles the questionnaires in that it has all the questions listed in order but omits interviewers' instructions and other superfluous matter.

By the code of each question is listed all the possible answers to it with the code number of each and the card and column number in which that answer is to be punched (we will see later that there may be two sets of codes for each question, the first being the one which is coded by the computer as some of the original codes may be recorded by the computer programme).

Where the question in the questionnaire is precoded, the codes in the coding guide are identical.

A great deal of work is involved in coding the open-ended questions, that is, in deciding the categories of answers and allocating each a code number. A sample of the questionnaires is taken and the written answers for an open-ended question are written down on a list. Then they are examined to determine which sorts of answers are similar in spite of being worded differently and each similar group is treated as identical for the purposes of analysis and given a unique code number. For example, the answers to the questions "why don't you like reading" may include "I've too many other things to do" "I just can't seem to find time nowadays" "If only I had 5 minutes to spare - I would". In spite of the different wording, these answers have the common factor of "lack of time" so that this would be listed on the coding forms as one of the possible answers to the question and given a code number. Other codes would be allocated in the same way.

It is better to have a detailed code rather than a simplified one as the former can be recoded into the latter at the computing stage but not vice versa.

On the other hand, too many codes for a question lead to extra work for the coding staff and may be too many to give adequate numbers in each category at the computing stage.

No hard and fast rules can be given only guidelines which have to be interpreted anew for each particular survey.

Nearly all surveys of indivuduals collect certain personal background data and the coding guides for most of these are straightforward. Sex, marital status and age are relatively simple to treat provided that allowance is built in to take account of cultural differences (e.g. the different definitions of marriage).

Social status is an important classification variable but may be difficult to handle; the easiest solution is to take the official government definition and manner of assignment. In the U.S.A., the social status variable is a composite of occupation, education and income while in Britain it is based solely on occupation and everyone is classified into 17 socio-economic groups. Before each census, the Registrar General publishes a list of occupations giving each a code number and from that the S.E.G. can be determined, also the five-point social class scale. This is used generally by official and academic researchers so that comparability is achieved in the very important variable of social status. In any other country the researcher should establish whether or not an official social status classification exists and, if so, he should use it. If an official classification does not exist he will need to seek advice.

The quality of the coding depends not only on the quality of the coders but also on the quality of the coding guide. If codes are ambiguous (especially with open-ended answers) or not well constructed, the coders will constantly be meeting answers for which no provision has been made. Nevertheless, even with good coding guides, some answers are met which do not have codes so that the researcher must always be on hand to allocate new codes and to ensure that all the coders receive the corrections, amendments and additions to the coding guide.

Any decision to change, delete or amend codes must be the sole responsibility of the researcher, not the coding staff otherwise the codes to each question will not be standard but dependent upon each individual coder.

B6.4 Data Analysis

Once edited and coded, the data are analysed, that is tabulations, and more complicated analytic procedures, are compiled in order to bring out the salient findings of the research project.

There is nothing inherently complicated about tabulation, it is only the process of arranging the data in tables showing the numbers of respondents falling into the different values or categories of the variable or variables being examined.

The simplest tabulation is usually called One-Way Frequency Distribution because, as the name implies, it shows the distribution of the data over the values of a given variable with the frequencies of the occurrence of each value.

For example, given a study of 2,000 respondents, a one-way Tabulation by the variable, Age, might look like :-

AGE OF RESPONDENT

	25 years	25-34 years	35-64 years	65 & over	NA	Total
No.	98	315	927	639	21	2000
%	5	16	46	32	1	100
Adjusted %	5	16	47	32	1	1979

Three points have to be considered.

First, absolute numbers are of limited use in themselves as the questions usually asked by researchers are to the type - "What proportion of the sample think this, or do that?" In addition, when comparing results between subgroups of the sample (comparing the educational level of non-readers with readers, for example) or between the research results of the current survey and other surveys it is necessary to compare relative numbers, that is percentages. Thus, wherever possible, percentages should appear in the table as well as the absolute numbers. It is important to give the base of the percentage calculations, that is, the number which corresponds to 100%, and it is especially important to do this in those cases where only the percentages are printed in the tabulations. At some point in the table there should appear "N = x (=100%)".

The second point is the treatment of missing values (the don't knows, not applicable or empty cells). Should they appear in the tabulation (as in the above example) or should a note appear below the Table, "Missing values = x"? Each situation depends upon the specific objectives of the tabulation. Even where missing values appear in the tabulations it is the usual practice in addition to calculate the percentages based on the total number of cases minus the missing values. This is the meaning of "adjusted percentages" shown in the example above.

The third point is the arithmetic precision of the percentage calculations - to what value of significant decimal places should the results be reported. Some researchers report 1 place of decimal, others record them to the whole numbers believing that any decimal place implies a degree of mathematical accuracy which is unfounded in survey results, in addition they believe reporting a fraction of the enquiry unit (for instance an individual) is nonsensical.

This is one problem where the researcher has to make up his own mind but once having decided, he should be consistent in his reporting. It is generally agreed that reporting percentages beyond 1 decimal place is to be avoided. With rounding decimals, the total might be slightly under or over 100%. Some researchers put the computed total in the table but others argue that as percentages are based on the total number being over 100, one of the categories (preferably the "N.A." if included in the table) should be adjusted to ensure that all the percentages total 100.

It should be standard practice in any survey that the first data-analysis carried out should be one-way tabulations for all the variable as this provides a useful preliminary overview of the data and tabulations are invaluable as basic data when one is computing more complicated tabulations later. But one very useful function of this exercise is as a check on the coding of the data as any "wild" codes will be revealed - i.e. codes which are outside the permitted ones for any specific variable (if one variable has the permitted codes of 1 - 6, then any items codes other than these, are coding errors) - and within the permitted code ranges the researcher can by experience and knowledge detect those variables which have unexpected distribution and investigate the matter further. For instance, if a project is concerned with the general public and a random sample of individuals has been taken from the electoral register, the researcher would expect roughly equal proportions of men and women. If, however, the men outnumbered the women by 10 to 1, there is some source of error which has to be investigated; it could be bad sampling, inadequate register, coding errors, punching errors or faulty computer input.

It is important not to underestimate the amount of time needed in "cleaning" the data particularly when the data has been punched for input to a computer. It is a very tedious and long task (checking computer print out line by line with original data sheets is very time consuming) but it is a necessary and essential task.

Tabulating is relatively simple, it is merely a case of counting how many respondents have answered "x", "y" or "z" to Question R (variable R).

If classification is required by a second variable, then each category of the first variable are then sorted into the numbers answering "X", "Y" or "Z" on the second variable.

This can be done manually but is tedious and time-consuming. If the number of questionnaires is long, or a large number of tables is required, this is a very long and laborious task. Hence, the need to use machinery Machines, whether unit record equipment or a computer can produce tables muct faster than by hand, can produce statistics in addition to the tabulations, and are less prone to error.

B6.5 Unit Record Equipment

This is equipment which mechanically handles punched cards and, as the name implies, it is usual for each case (record or unit of enquiry) to be contained on one card. This is not always the situation but as this equipment can only produce analyses for variables which are on the same card and in different columns, the amount of data per record (i.e. number of variables) is generally limited. Multi-punching on a card and the duplication of common data on each card in the case, can make it possible to increase the number of variables and cross tabulations but to nothing like the number possible with a computer.

With a card-sorter, a marker is set to the desired column, then the cards are sorted into pockets, each one corresponding to one of the 12 punch positions in the column (0 - 9, X, Y). A computer sorter produces on a bank of counters, the number of cards sorted into a particular pocket. These numbers have to be manually written down on a piece of paper. If the two-way table is required, the cards are taken out of the pockets (but kept in their separate piles), the indicator set to the column corresponding to the second variable, and each category (or pile of cards) produced by the first sort, it put through the counter-sorter, pile by pile with the operator noting down the number in each occasion. Thus any tabulation can be a long process depending upon the total number of cards and number of categories. Any statistics needed on the numbers (such as percentages, means, etc.,) have to be computed by hand afterwards.

A tabulator can compute the tabulations mechanically by adding the numbers punched in given columns, calculate the totals and print them as cross tabulations. A tabulator needs specialist skills or at least experienced operators, but given this, most of the tabulations required in surveys can be produced on them but not the complicated statistical analysis now common.

Even where most of the analyses are to be produced by a computer, it is useful to have unit-record equipment available to help out when computer time is not, or to check some particular variable on a card.

B6.6 Computers

The use of computers has led to tremendous advances in survey analysis. Results can be produced faster more complicated cross-tabulations can be computed and it has led to the development and use of sophisticated multivariate analysis procedures.

Most survey analysis today is carried out with the use of a standard analysis programme or package such as SPSS (Statistical Package for the Social Sciences) so that the researcher does not have to regard the computer as anything more than a highpowered tool, a means of producing the necessary tabulations. Most current packages, especially the one mentioned above, are sophisticated ones allowing for the researcher to perform complex arithmetical computations and recording of his variables and to perform multivariate analyses quite simply. In fact they are open to abuse as a researcher can very easily obtain the results of a sophisticated analysis without understanding it or use statistical techniques on his data although the theoretical considerations and constraints of the techniques are not met by his data and thus produce results based on invalid premises.

Whatever the programme used, the researcher must study its manual carefully and note the form in which it requires the data to be coded for input in order to organise his coding guide accordingly.

B6.7 Further Tabulating and Analysis

While one-way tabulations describe the frequencies of individual variables with, perhaps, measures of their central tendancy (such as the mean and the median) and of their dispersion (standard deviation and semi-interquantile range), they will tell nothing about the inter-relationships of variables - how one variable relates to another.

The study of inter-relationship involves cross tabulations, sometimes called cross-association, cross classification or N-way tables (where N is the number of variables being cross-tabulated).

For instance, while it is of interest to know the proportion of respondents who used, or did not use, say a Trade Directory in the last month this statistic alone does not tell us anything about the characteristics of users or non-users. Do they differ

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with regard to age, education, size of firm worked off, type of job, etc.? These questions can only be asked by computing two or more way tables.

In any survey with a large number of variables the combination, and therefore, number of two-way tables that can be produced is very large and if produced will cause the researcher a great deal of time and effort in examining them or in teasing out the important relationships.

This is one reason why it is vitally necessary to have some research objectives, some hypothesis that is to be treated as it gives a direction to the analysis stage.

For any research project, there is usually a small number of variables that the researcher is interested in, these are called dependent variables and may be such things as "the use of trade information sources", "readership habits", the use of journals as opposed to textbooks".

The researcher is interested in trying to find out the factors that influence the dependent variables and therefore, examines the dependent variables in relationship or association with variables that are used as measures of these influencing factors, these variables are called independent variables. They are called independent, as their value is assumed to be independent of any variables in the study while the behaviour of the dependent variables is assumed to be dependent upon one or more of the independent variables either singly or in comination.

It is advisable to select only a small number of independent variables to tabulate against a dependent variable in order to keep down the number of tables to a manageable number. In any case, it is usual to put in the report only the tabulations in which there is a significant* relationship, and those for which there is no significant association are commented on verbally.

It is helpful if some single measure of association can be calculated for the tabulation such as Chi-squared or Gamma; most computer porgrammes produce these statistics automatically (the SPSS manual explains these measures of association simply and very adequately).

An example of a cross-tabulation might be to examine the association of using journals in preference to books as information sources cross-classified by the respondents' academic discipline.

PREFERENCE (Dep. Variable)	No.	Science	Social Science	Humanities	Total
Prefer Journals	No.	80	20	5	105
	%	76	19	5	100
Prefer Books	No.	10	50	125	185
	%	5	27	68	100
Total	No.	90	70	130	290
%	%	31	24	45	100

(Missing Value = 10)

X^2 = 131,539, p less than 0.1%

After analysing a two-way tabulation, it might be postulated that the significant association found might be due to some other independent variable which causes the association by its effect on both of the variables in the two-way tabulation.

Cross tabulations need not be composed only of the absolute numbers and percentages, but can be of other statistical measures.

* usually this means statistical significance at the 5% level though substantively significant associations are sometimes reported.

SPSS, for example, has the procedure, BREAKDOWN, which calculates the mean of the dependent variable for an independent variable or variables so that an N-way Breakdown (up to 9 variables) can be produced.

In a survey with a large number of variables, production of cross-tabulations for the dependent variables with each independent variable and its significance measure, can be tiresome. In these cases, a correlation matrix can be computed which gives the correlation coefficient for each combination of variables so that nonsignificant relationships can be ignored and analysis concentrate on the significant ones. Partial correlation procedures can test for the spuriousness of the association between pairs of variables.

In presenting results, it makes for clearer reading if they are divided into sections, each one concentrating upon one dependent variable and the results of the significant associations of it with the independent variables commented on briefly with selected tabulations. It is not necessary to duplicate the finding of each table presented in the verbal discussion, indeed it makes for extremely tedious reading, but merely to comment on it while results can be discussed in the text for which there is no substantial accompanying table (though it is desirable to print it in an Appendix).

Where a result is commented on in the text the statistic used and the level of significance should be given in parenthesis, fot instance,

> "It was found that the preference for journals rather than textbooks was greater among scientists than for other disciplines (X^2 = 131,539, p = less than 0.1%)."

It is useful to present tables which summarise the results discussed in addition to the individual tabulations for instance.

Library Membership: Summary

Independent Variable	Significant Level	Test Variable
Sex	5%	Chi-squared
% Aged 35+	5%	Diff. of proportion
% Social Class 1&2	5%	Diff. of proportion
% 3rd level education	1%	Diff. of proportion
No. of books bought	5%	Diff. of means
Residence	N.S	Chi-squared
Income	N.S.	Diff. of means

Analysis is not confined to explanation of the associations found in the survey but can be extended to prediction, i.e. using the associations, trying to forecast or predict which type of respondents are likely to behave in a certain way or hold a certain attitude.

In the planning of a new library or information service, it is necessary to make some predictions as to the level of possible usage and the type of user so that the services can be tailored to them. Or if it is desired to increase library membership by means of a publicity campaign, it is necessary to have some idea of the characteristics of non-users and their reaction to different publicity strategies. To facilitate prediction, there are a number of multivariate statistical techniques which, on the basis of survey results combine the significant independent equation in an equation allocating to each, a weight or coefficient in proportion to its contribution to the prediction equation. This is a complicated subject and should be read in advanced text such as "Econometric Methods" by Johnston (17) though the SPSS manual gives an excellent introduction to them.

B.7 THE NATURE AND CONTENT OF SURVEY REPORTS

The reporting stage is an important one. Furtunately, the United Nation's Statistical Office has made some recommendations on the preparation of survey reports and parts of the relevant documents are reproduced here.

The United Nations Recommendations *

Preliminary Report

A preliminary report is often required to make available date of current interest as rapidly as possible; such results may relate to selected important characters sometimes based on a sub-sample of the full sample. It should contain a brief statement concerning the survey methods and the limitations of the data. As a very minimum, information should be given concerning the size of the sample, the method of selecting the sample and discrepancies observed between external and internal data. Fuller details can be given in the general and technical reports on the survey.

General Report*

This should contain a general description of the survey for the use of those who are primarily interested in the results rather than in the technical statistical aspects of the sample design, execution and analysis. The general discription should include information on the following points:

1. Statement of purposes of the survey: A general indication should be given of the purposes of the survey and 'margin of error' which would be permissible for the purposes of the survey, and the ways in which it is expected that the results will be utilized. In this connexion it is useful to distinguish the following types of surveys:

(i) Integrated survey: In an integrated survey, data on several subjects (or items, or topics) are collected for the same set of sampling units for studying the relationship among items belonging to different subject fields. Such surveys are of special importance in studies on levels of living. Integrated surveys of consumption and productive enterprises are also of special importance in developing countries where the related activies are frequently undertaken in an integrated manner in the household.

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* United Nations Statistical Office, 1976. The full document contains seven sections: Section I is a brief introduction; Section II to IV, which are reproduced here, deal with the contents of three types of report - preliminary, general and technical; Section V gives a brief description of common types of sampling and gives difinitions for some technical terms; Section VI briefly describes methods of sample selection; and Section VII

(ii) Multi-subject survey: When in a single survey operation several subject, not necessarily very closely related, are simultaneously investigated for the sake of economy and convenience, the investigation may be called a multi-subject survey. The data on different subjects need not necessarily be obtained for the same set of sampling units, or even for the same type of units (e.g. households, fields, schools, etc.).

(iii) Continuing surveys: The most usual example of these surveys occurs where a permanent sampling staff conducts a series of repetitive surveys which frequently include questions on the same topics in order to provide continuous series deemed of special importance to a country. Questions on the continued topics can frequently be supplemented by questions on other topics, depending upon the needs of the country.

(iv) Ad hoc survey: This is a survey without any plan for repetition.

(v) Multi-purpose survey: This term is sometimes used in connexion with sampling organizations which conduct surveys in various fields of interest to several department or parties, keeping in view their diverse purposes. This permits economies in the technical and other resources and their more effective use, particularly in developing countries.

(vi) Specialized or special-purpose survey: This may be defined as an investigation focussing on a single set of objectives which, because of their nature of complexity, requires specialized knowledge or the use of special equipment by a technical staff with training in the subject field of enquiry.

2. Description of the coverage: An exact description should be given of the geographic region or branch of the economy or social group or other categories of constituent parts of a population covered by the survey. In a survey of a human population, for example, it is necessary to specify whether such categories as hotel residents, institutions (e.g. boarding houses, sanatoria), person without fixed abode, military personnel, were included and to indicate the order of magnitude of the categories omitted. The reporter should guard against any possible misapprehension regarding the coverage of the survey.

3. Collection of information: The nature of the information collected should be reported in considerable detail, including a statement of items of information collected but not reported upon. The inclusion of copies of the questionnaire or other schedules, and relevant parts of the instructions used in the survey (including special rules for coding and classifying) is of great value, and such documents should therefore be reproduced in the report if possible.

The information may be collected by direct investigation, or by mail or telephone. Direct investigation may involve objective methods of observation or measurement. The method of collection should be reported, together with the nature of steps taken to ensure that the information is as complete as possible (e.g. methods of dealing with non-response). The extent and causes of non-response, etc. should be stated.

It is of importance to describe the type and number of investigators, e.g. whether whole or part-time, permanent or temporary, with particulars of their training and qualifications.

4. Repetition: It is important to state whether the survey is an isolated one or is one of a series of similar surveys. Where the survey is repetitive and some of the sampling units reappear in the successive stages, this should be stated.

5. Numerical results: A general indication should be given of the methods followed in the derivation of the numerical results. Particuls should be given of methods of weighting and of any supplementary information utilized, for example to obtain ratio estimates. Any special methods of allowing for non-response should be described.

6. Date and duration: There are two periods of time which are important for any survey: (i) the period to which data refer, or reference period, (ii) period of collection, that is, the period taken for the field work.

In order to minimize lapses, the length of the reference period is sometimes fixed but not the end points, as in 'preceding week' questions (the collection period being comparatively long). In such cases, the reference period may be called moving in contrast with a fixed reference period when the end points are fixed. The reference period, if properly selected, enhances the use and value of the information collected in the survey. Sometimes different reference periods are used for different topics in the same survey. This is done with a view to eliciting more accurate information from the respondents, as in a family budget survey, where questions on food items may be asked for the proceeding week or month, but information on clothing or furniture or some durable goods may be asked for the whole year. In health surveys, different reference periods are used for different items, e.g. illness during the preceding two weeks, hospitalization during the year. When the field work is conducted on a continuous and successive basis, the parts of the survey which are operationally separate are called rounds.

7. Accuracy: A general indication of the accuracy attained should be given and a distinction should be made between sampling errors and non-sampling errors.

8. Cost: An indication should be given of the cost of the survey, under such headings as preliminary work, field investigations, analysis, etc. Resources used in the conduct of the survey but not included in the costs should be stated.

9. Assessment: The extent to which the purposes of the survey were fulfilled should be assessed.

10. Responsibility: The mames of the organizations sponsoring and conducting the survey should be stated.

11. References: References should be given to any available reports or papers relating to the survey.

Technical Report

Technical reports should be issued for surveys of particular importance and those using new techniques and procedures of special interest. In addition to covering such fundamental points as the pruposes of the survey, conditions to be fulfilled and resources available for the survey, the report should deal with technical statistical aspects of the sampling design, execution and analysis; the operational and other special aspects should also be fully covered.

Survey Methods in Social Investigation

1. Specification of the frame: A detailed account of the specification of the frame should be given; this should define the geographic areas and categories of material included and the date and source of the frame. If the frame has been

emended or constructed ab initio the method of emendation or construction should be described. Particulars should be given of any known or suspected deficiencies.

2. Design of the survey: The sampling design should be carefully specified, including details such as types of sampling unit, sampling fractions, particulars of stratification, etc. The procedure used in selecting sampling units should be described and if it is not by random selection the reporter should indicate the evidence on which he relies for adopting an alternative procedure.

3. Personnel and equipment: It is desirable to give an account of the organization of the personnel employed in collecting, processing and tabulating the primary data, together with information regarding their previous training and experience. Arrangements for training, inspection and supervision of the staff should be explained; as also should methods of checking the accuracy of the primary data at the points of collection. A brief mention of the equipment used is frequently of value to readers of the report.

4. Statistical analysis and computational procedure: The statistical methods followed in the compilation of the final summary tables from the primary data should be described. If any more elaborate processes of estimation than simple totals and means have been used, the methods followed should be explained, the relevant formulae being reproduced where necessary.

It frequently happens that quantities of which estimates are required do not correspond exactly to those observed; in a crop-cutting survey, for example, the yields of the sample plots give estimates of the amount of grain, etc., in the standing crop, whereas the final yields will be affected by losses at various stages, such as harvesting, storing, transport, marketing, etc. In such cases adjustments may have to be made, the amount of which is estimated by subsidiary observations, or otherwise. An account should be given of the nature of these adjustments and the ways in which they were derived.

The steps taken to ensure the elimination of gross errors from the primary data (by scrutiny, sample checks, etc.) and to ensure the accuracy of the subsequent calculations should be indicated in detail. Mention should be made of the methods of processing the data (punched cards, hand tabulation, etc.) including methods used for the control of errors.

In recent years electronic computers have been applied to making of estimates from sample surveys. In addition, they have been programmed to tasks of editing with consequent improvement of consistency of the primary data and possibly of its accuracy. Their use goes beyond the mere speeding up of existing methods and lowering cost. They have made possible some forms of estimation (e.g. the fitting of constants in analysis of variance with unequal numbers in the sub-classes) on a scale which would have been impracticable with hand methods. In some instances regression on previous surveys of a series with overlapping samples can substantially improve the precision of estimates. The use of these computers make possible changes in the allocation of resources between the collection of the data and the processing.

The amount of tabular matter included in the report, and the extent to which the results are discussed, will depend on the purposes of the report. If a critical statistical analysis of the results embodied in the final summary tables has been made, it is important that the methods followed should be fully described. Numerical examples are often of assistance in making the procedure clear. Mention should be made of further tabulations which have been prepared but are not included in the report, and also of critical statistical analyses which failed to yield results of interest and which are therefore not considered to be worth reporting in detail.

The inclusion of additional numerical information which is not of immediate relevance to the report but which will enable subsequent workers to carry out critical statistical analyses which appear to them to be of interest should be carefully considered. If, for example, in addition to the class means of each main classification of the data, the sub-class numbers (but not the means) of the various two-way classifications are reported, a study of the effects of each of the main classifcatons freed from the effects of all others classifcations freed from the effects of all other classifications can be made (provided the effects are additive) without further reference to the original information.

5. Accuracy of the survey:

(i) Precision as indicated by the random sampling errors deducible from the survey: Standard deviations of sampling units should be given in addition to such standard errors (of means, totals, etc.) as are of interest. The process of deducing these estimates of error should be made entirely clear. This process will depend intimately on the design of the sample survey. An analysis of the variances of the sampling units into such components as appears to be of interest for the planning of future surveys, is also of great value.

(ii) Degree of agreement observed between independent investigatiors covering the same material: Such comparison will be possible only when interpenetrating samples have been used, or when checks have been imposed on part of the survey. It is only by these means that the survey can provide an objective test of possible personal equations (differential bias among the investigators). Any such comparisons or checks should be fully reported.

(iii) Other non-sampling errors: The existence and possible effects of non-sampling errors on the accuracy of the results, and of incompleteness in the recorded information (e.g. non-response, lack of records, whether covering the whole of the survey or particular areas or categories of the material), should be fully discussed. Any special checks insituted to control and determine the magnitude of these errors should be described, and the results reported.

Another source of error is that due to incorrect determinations of the adjustments (referred to in Section VII-4) arising from observation of quantities which do not correspond exactly to the quantities of which estimates are required.

6. Accuracy, completeness and adequacy of the frame: The accuracy of the frame can and should be checked and corrected automatically in the course of the enquiry, and such checks afford useful guidance for the future. Its completeness and adequacy cannot be judged by internal evidence alone. Thus, complete omission of a geographic region or the complete or partial omission of any particular class of the material intended to be covered cannot be discovered by the enquiry itself and auxiliary investigations have often to be made. These should be put on record, indicating the extent of inaccuracy which may be ascribable to such defects.

7. Comparisons with other sources of information: Every reasonable effort should be made to provide comparisons with other independent sources of information. Such comparisons should be reported along with the other results, and the significant differences should be discussed. The object of this is not to throw light on the sampling error, since a well designed survey provides adequate internal estimates of such errors, but rather to gain knowledge of biases, and other non-random errors.

Disagreement between results of a sample survey and other independent sources may of course sometimes be due, in whole or in part, to differences in concepts and definitions or to errors in the infromation form other sources.

8. Costing analysis: The sampling method can often supply the required information with greater speed and at lower cost than a complete enumeration. For this reason, information on the costs involved in sample surveys are of particular value for the development of sample surveys within a country and are also of help to other countries.

It is therefore recommended that fairly detailed information should be given on costs of sample surveys. Costing information should be given under such headings as planning (showing separately the cost of pilot studies), field work, supervision, processing, analysis and overhead costs. In addition, labour costs in man-weeks of different grades of staff and also time required for interviewing, travel and transport costs should be given. The collection of such information is often worthwhile, since it may suggest methods of economizing in the planning of future surveys. Moreover, the preparation of an efficient design involves a knowledge of the various components of costs as well as of the components of variance. It should be emphazied that the concept of cost in this respect should be regarded broadly in the sense of economic cost and should therefore take account of indirect costs which may not have been charged administratively to the survey. Wherever possible, the costing data should distinguish the time and resources devoted to the various operations involved in the survey.

9. Efficiency: The results of a survey often provide information which enables investigations to be made on the efficiency of the sampling designs, in relation to other sampling designs which might have been used in the survey. The results of any such investigations should be reported. To be fully relevant the relative costs of the different sampling methods must be taken into account when assessing the relative efficiency of different designs and intensities of sampling.

Such an investigation can be extended to consideration of the relation between the cost of carrying out surveys of different levels of accuracy and the losses resulting from errors in the estimates provided. This provides a basis for determining whether the survey was fully adequate for its purpose, or whether future surveys should be planned to give results of higher or lower accuracy.

10. Observations of technicians: The critical observations of technicians in regard to the survey, or any part of it, should be given. These observations will help others to improve their operations.

Concluding remarks on presentation

This is the provisional issue of the revised U.N. recommendations, and it remains only to emphasize one or two points. Special attention should be given to the first sentence of paragraph 1 under the General Report. The researcher himself may have been interested in the subject of the survey for so long that nothing seems to him more natural than to have undertaken the enquiry; but for the reader it is otherwise. He may genuinely wonder why anyone should want the information the survey has provided or why the subject should have been approached as it was. It is up to the surveyor fully to explain his purpose and approach.

The detail and form in which the results are presented vary with each survey, and the report writer inexperienced in these matters should acquaint himself with the principles of presenting statistical information: how to arrange tables, what symbols to use, how much accuracy to give in the figures, what diagrams to employ for different purposes, and so on. Enlarging on paragraph 5 under the General Report and paragraph 4

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under the Technical Report, we would emphasize the non-quantified material has a useful place in every social survey report. To many readers, statistical tables are dull and difficult to comprehend, and a certain amount of verbatim quotation of answers, as well as verbal summary of the tables, enlivens the report and makes it easier to digest.

The presentation of sampling errors sometimes causes awkwardness. To accompany each figure by its corresponding standard error satisfies the most rigorous requirements but hardly makes for easy reading. On the other hand, simply to give details of sample size (and standard deviations, where variables are concerned) and leave it to the reader to estimate any sampling errors he may be interested in - probably by using the simple random sampling formulae together with his own evaluation of the likely value of the design effect for the complex sample employed - is to shirk one's duty and to impose an un-deserved burden on the reader. There are some useful compromises.[1] If the figures in the report are all proportions, one can print a simple two-way table, in which the columns represent, say, different values of the sample proportion and the rows different sample sizes.

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[1] See Kish ((15), Section 14.1) for a discussion of the presentation of sampling errors.

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APPENDIX - QUESTIONNAIRES

Introduction

It must be remembered that the questionnaires presented here are only examples and are to be used for guidance and adaptation. Each particular user-studies project will require its own specific questionnaire and the format will depend upon the type of interviews, characteristics of the population and country, subject and the use to be made of the document subsequent to the interview. The questions to be asked will depend primarily upon the subject matter and the population questioned while the layout, wording, etc., will depend upon the population as well as the other factors outlined above.

The examples are given in a Module format so that they can be used separately or in combination as is necessary given the particular problems, objectives and characteristics of a specific study.

Module A is the personal data section and can be used for all the educational projects.

Module B is for persons who teach while

Module C is for people who undertake research yet work in an educational establishment. An investigation of university lecturers would use both Modules B and C.

Module D is for staff in establishments other than educational ones such as companies, university administration, personnel in full-time establishments and so on,and it collects their basic data.

Module E is designed to collect data on the Information Use and Seeking habits of people in those establishments for which Module D would be used.

Module F is an example of a hand-out questionnaire for library users.

Module G collects information about the community characteristics and is designed mainly for rural areas.

Module H is a household questionnaire;

Module I is designed to collect information from the small farm type of establishment while

Module J is designed for the large agricultural establishment (plantation, branch of national or international concern, etc.).

Module K is an example of a contact sheet (i.e. page 1) for an interviewer administered survey and this particular sheet is designed for a household survey though with modifications, it could be used for establishments.

MODULE A

EDUCATIONAL STAFF QUESTIONNAIRE

Office use only

Questionnaire N

Basic personal data

1. **Name:**
2. **Institution**
3. **Age last birthday** (in years)
4. **Academic or professional qualification** (in chronological order)

	Qualific.	Date taken	Subject(s)	Institution
a)				
b)				
c)				
d)				
e)				

5. a) What is your present post:

   b) How long have you been in it:

6. a) Have you worked in any post other than an educational/academic one?

   YES ☐ NO ☐

   b) **IF YES** What type of work was it:

   How long did you do it:

7. In which activities are you engaged during this academic year and how many hours do you spend on them in an average week?

   a) Preparation of lectures/lessons/seminars ☐
   b) Giving lectures/lessons/seminars ☐
   c) Guidance of students ☐
   d) Administrative duties ☐
   e) Your own research ☐
   f) Other (please specify) ☐

8. Do you belong to any societies, organizations, trade consortium etc., in connection with your work?

   YES ☐ NO ☐

IF YES please list them:

MODULE B - **Teaching data**

Office use only

1. What subjects are you teaching in the current academic year, how many students do you have and what is the level (year) of the course.

	Subject	No. of Students	Level (Yr) of Course
a)			
b)			
c)			
d)			
e)			

2. What teaching methods do you use (tick all applicable)

Lectures/lessons ☐ Seminars (small groups) ☐

Tutorials (1 or 2 students) ☐ Practical/lab. work ☐

Other ☐ (please specify) ____________________

3. Have you used any of the following during the current academic year to obtain information in order to prepare your lectures/lessons/ seminars (TICK ALL THAT APPLY)

Books ☐ Govt. or official publications ☐

Collected readings ☐ Dictionaries/directories/ reference works ☐

Conference proceedings ☐ Periodicals/Journals/reprints ☐

Research reports/theses ☐ Newspapers (daily or weekly) ☐

Own files ☐ Internally generated (memos, etc.) ☐

4. What other forms of information have you used:

(Prompt: Microfiche, Microforms, Maps, TV, Audiovisual material)

None ☐

Office use onl

5. Please rate the following sources according to their usefulness to you in teaching - if any are not available to you please say so.

	Very useful	Useful	D.K.	Not useful	Not available
Periodicals, Journals					
Books					
Research reports					
Proceedings of conferences					
Maps					
Films & other A.V. material					
Newspapers					
Reference books					
Microcopies					
Monographs & pamphlets					
Govt. pubs. & official stats.					
Personal contacts, friends					

6. Do you keep a personal indexing system for material relevant to your teaching

YES ☐ NO ☐

7. Have you received any useful information from friends, colleagues or other personal contacts during the last academic year:

A lot ☐ Some ☐ None ☐

Office use onl

8. Have you used any of the following guides during the current academic year to obtain information relevant to your teaching (ASK EACH ONE)

	YES	NO
References or bibliographies in books and periodicals	☐	☐
Book reviews	☐	☐
Specialist bibliographies, especially published	☐	☐
Abstracting or indexing journals	☐	☐
Commercially produced information services	☐	☐
Govt. information services	☐	☐
Library catalogue	☐	☐
Reading lists, bibliographies produced by library staff	☐	☐
Current awareness service	☐	☐
S.D.I.	☐	☐
Fact sheets and subject guides	☐	☐
Publishers' lists	☐	☐

9. Which journals and periodicals (including newspapers do you read regularly in connection with your teaching.

10. Which libraries have you used in connection with your research. Please list them in order of preference of use.

1.

2.

3.

4.

Office use only

11. How adequate is the bookstock of your own institution's library in terms of your own research

Sufficient for all my requirements ☐
most ☐
some ☐
few ☐
none ☐
Haven't one, D.K., N.A. ☐

12. Which of the following library sources have you used in the last year in connection with your teaching
(TICK ALL THAT APPLY)

Borrowing ☐
Borrowing periodicals, journals ☐
Consulting of library stack in library for reference/ information ☐
Use of interlibrary loan services ☐
Reservation of books (held by library) ☐
Provision of photocopies ☐
Information and enquiry services provided by library staff ☐
Information on location of books in other libraries ☐
Access to commercially produced information services ☐
Other (please specify) ☐

13. Are there any ways in which the library services could be improved to fill your teaching needs

YES ☐ NO ☐

IF YES In what ways:

Office use onl

14. Are there any other information sources (libraries, periodicals books, etc.) you would like to use

YES ☐ NO ☐

IF YES which ones:

15. How many books do you personally own in connection with your teaching duties

NONE ☐
1 - 9 ☐
10 - 24 ☐
25 - 49 ☐
over 50 ☐

16. In connection with your teaching duties, how much did you spend in the last 12 months on books _______
periodicals _______ newspapers _______

other info. sources _______ (please specify them):

17. Are there any comments you would like to make on the kind of information you need for your teaching:

MODULE C - Research - Educational Establishments

Office use only

1. What is the topic of your research:

2. At what date did you begin it:

3. a) Are you conducting it alone ☐

with others ☐

IF WITH OTHERS

b) how many ___

c) what is you own status in it: ------------------

4. How many hours a week do you normally devote to it

during the term ----------------

during the vacation ------------

5. What are the sources of your information and data (TICK ALL APPLICABLE)

Books ☐

Collected readings ☐

Conference proceedings ☐

Research reports/theses ☐

Own files ☐

Experiment results ☐

Govt. or official stats ☐

Dictionaries or other ref. works ☐

Periodicals and journals ☐

Newspapers (daily or weekly) ☐

Unpublished files ☐

Survey data ☐

6. What other forms of information have you used: (Prompt: for example, microfilm, microfiche, maps, etc.)

Office use only

7. Please rate the following sources according to their usefulness to you in your current research, if any are not available to you please say so:

	Very Useful	Useful	D.K.	Not Useful	Not available
Periodicals, journals					
Books					
Research reports					
Conference proceedings					
Maps					
Films and other A.V.					
Newspapers					
Reference books					
Monographs					
Govt. pubs. & official data					
Other statistical data					
Own generated data					
Unpublished files					

8. Please rate the following types of information according to the extent of your use of them in your research.

	Not Used	D.K.	Used to some extent	Used a lot
Historical				
Descriptive				
Statistical or Numerical				
Methodological				
Conceptual & theoretical				

Office use only

9. Do you keep a personal indexing system for material relevant to your research

YES ☐ NO ☐

10. Have you received any useful information from friends, colleagues or other personal contacts during the last year

a lot ☐ Some ☐ None ☐

11. Have you used any of the following guides during the last year in connection with your research (TICK EACH ONE)

	YES	NO
References and bibliographies in books and periodicals	☐	☐
Book reviews	☐	☐
Specialist bibliographies, separately published	☐	☐
Abstracting or indexing journals	☐	☐
Commercially produced information services	☐	☐
Govt. information services	☐	☐
Library catalogues	☐	☐
Reading lists, bibliographies, produced by lib. staff	☐	☐
Current awareness systems	☐	☐
S.D.I.	☐	☐

12. Which journals do you read regularly in connection with your research:

----

13. Have you used any abstracting and indexing journals in connection with your research

YES ___ NO ___

IF YES Please list them and rate them in terms of ease of use:

TITLE	difficult to use	Fairly easy	Very easy
1.			
2.			
3.			
4.			

IF NO (i.e. not used any) Why not?:

Office use only

14. Which libraries have you used in connection with your research Please list them in order of your preferences of use.

1. ____________________
2. ____________________
3. ____________________
4. ____________________

15. How adequate is the bookstock of your own institution's library in terms of your own research:

Sufficient for all requirements ☐

Sufficient for most of your requirements ☐

Sufficient for some requirements ☐

Sufficient for few of your requirements ☐

Sufficient for none of your requirements ☐

Hasn't one, D.K., N.A. ☐

16. Which of the following library services have you used in the last year in connection with your research
(TICK ALL THAT APPLY

Borrowing books	☐	Borrowing periodicals	☐
Consulting stock for reference	☐	Interlibrary loans	☐
Reservation of books	☐	Info. from lib. staff	☐
Photocopies	☐	Info. on books in other libraries	☐

Access to commercially produced info services ☐

Other (please specify) ____________________

17. Are there any ways in which library services could be improved to fit your research needs?

YES ☐ NO ☐

IF YES In what way:

(C4)

Office use only

18. Are there any other information sources - libraries, books, periodicals , etc., you would like to use

YES ☐ NO ☐

IF YES please state which ones:

why can't you use them?

19. How many books do you personally own in connection with your research duties

NONE ☐
1 - 9 ☐
10 - 24 ☐
25 - 49 ☐
50+ ☐

20. In connection with your research how much did you spend in the last 12 months on:

Books ☐ Periodicals ☐ Newspapers ☐
Other sources ☐ (please specify):

21. Are there any comments you would like to make on the kind of information you need for your research:

MODULE D

Office use only
Questionnaire No.

STAFF QUESTIONNAIRE

1. Name:

2. Institution/Company:

3. Nature of Institution/Company's business:

4. Age at last birthday:

5. What is your job title:

6. Please describe the type of work you do, the nature of your duties and so on:

7. What was the last fulltime educational establishment that you went to:

8. At what age, did you finish fulltime education:

9. Do you have any professional qualifications YES ☐ NO ☐

IF YES Please list them:

	Qualif.	Date taken	Subject	Institution
a)				
b)				
c)				

10. Do you belong to any societies, trade associations or professional bodies in connection with your work YES ☐ NO ☐

IF YES please list them:

11. What is the total number of

staff members ____
technicians ____
other workers ____

Office use onl
Questionnaire

MODULE E

INFORMATION USE AND SEEKING

1. Which types of information and data do you use in the course of your work
(TICK ALL THAT APPLY)

Govt. and other official information/statistics ☐
Trade directories ☐
Internally produced statistics ☐
Computer printout ☐
Internally produced documents ☐
Manuals and specifications ☐
Patents ☐
Newsheets ☐
Other (please specify) ☐

2. a) Do you use a library in connection with your work

regularly ☐ Sometimes ☐ Not at all ☐ GO TO 4

b) Which ones:

3. Do you use the library for:
(TICK ALL THAT APPLY)

Consultation of books ☐
Consultation of journals, periodicals, newpapers ☐
Consultation of trade specifications, manuals, etc. ☐
Consulting reference material ☐
Requests to library enquiry and reference staff ☐
Photocopies ☐
Other (Specify) ☐

Office use onl

4. Do you use any of the following in connection with your work (tick all that apply)

Abstracting and Indexing services ☐
Commercially provided information services ☐
Govt. information services ☐
Trade journals, etc. ☐

5. Do you read any journals or periodicals regularly in connection with your work

YES ☐ NO ☐

IF YES which ones:

6. Do you read any newspapers (whether specialized or not) in connection with your work

YES ☐ NO ☐

IF YES which ones:

7. Do you go regularly to trade, vacational or professional meetings, conferences, etc.

YES ☐ NO ☐

IF YES which ones:

8. Are there any ways in which your information requirements could be better satisfied (access to libraries, new services, better statistics, etc.)

YES ☐ NO ☐

IF YES in what way:

9. Have there been any occasions during the last year when your work has been held up or suffered in any way through the lack of adequate information

YES ☐ NO ☐

IF YES please give details:

Office use only

10. How do you keep up to date in your particular subject:

11. Do you have to deal with the public or people outside your institution

YES ☐ NO ☐

IF YES what type of clients are they:

Are you responsible for giving them information

YES ☐ NO ☐

IF YES what type:

what information sources do you use:

Could they be improved in any way:

(E3)

MODULE F.

LIBRARY USERS - Example of Self-Completion Questionnaire

LIBRARY SURVEY

IMPORTANT - Please put a TICK ( ) in BOXES where the answer is YES. Leave other boxes BLANK

1. Sex Male ☐ Female ☐

2. Age Under 21 ☐ 21 - 34 ☐ 35 - 64 ☐ 65 & over ☐

3. How long have you been coming to the library?

Over 10 yrs ☐ 5 - 10 yrs ☐ 1 - 4 yrs ☐

Under 1 yr ☐ 1st visit ☐

4. Are you a Regular ☐ Infrequent ☐ User of this library?

5. Is today's visit for pleasure ☐ On business ☐

for some information ☐

6. Did you borrow a fictional book ☐

borrow a nonfictional book ☐

Look up references/info. ☐

Ask staff for information ☐

Use reading room ☐

Other purposes ☐

7. Do you think the library stock is

very good ☐

good ☐

fair ☐

not good ☐

8. Do you find the library staff helpful ☐ not helpful ☐

IF YOU HAVE ANY COMMENTS TO MAKE ON ANY ASPECTS OF THIS LIBRARY, PLEASE WRITE THEM BELOW.

(G2)

-A20-

MODULE G

Office use only

COMMUNITY SCHEDULE

LOCALITY

1. Name of Locality____

2. Is it urban ☐ village ☐ rural area ☐

3. How far is the locality from the following places?

   a) nearest road on which buses run _______ Km
   b) nearest bus stop _______ Km
   c) nearest railway station _______ Km

4. Is there regular transport service from the locality

   YES ☐ NO ☐

5. How far is the nearest post office _______Km

   ______ Km

6. How many people in the locality are

   Literate_________ Illiterate ___________

LAND UTILIZATION

7. Record the number of acres in each category

   sown at least once a year ☐
   land used for pasture ☐
   land used for plantations ☐
   land used for orchards ☐
   cultivatable waste land ☐
   noncultivatable waste land ☐
   forests ☐

8. Main crops (beginning with most common)

Crop	% of arable land cultivated	% sold	% consumed

Office use only

9. Which of the following implements are used:

primitive plough	☐	tractor	☐
plough - animal pulled	☐	truck	☐
tractor- plough	☐	jeep	☐
reaping-threshing machine	☐	water pump	☐
ox-cart	☐	generator	☐
horse cart	☐	other (specify)	☐

10. How much of the following are used (in Kgs./yr)

national fertilizer	☐	Synthetic fertilizer	☐

11. Number of animals in the locality

Ox	☐	donkey	☐	goat	☐
buffalo	☐	horse	☐	poultry	☐
cow		sheep	☐	camel	☐

12. State the number of holdings in the locality

Less than 1 acre	☐	1 - 4 acres	☐
5 - 9 acres	☐	10 - 49 acres	☐
50 - 99 acres	☐	over 99 acres	☐

MODULE H

Office use onl

Questionnaire

URBAN HOUSEHOLD SURVEY

1. How many people (including babies) in the household can read ___ cannot read ___

2. Do you regularly read any daily newspapers YES ☐ NO ☐

   IF YES which ones:

   ----

3. Do you regularly read any weekly newspapers YES ☐ NO ☐

4. Do you regularly read any magazines/journals YES ☐ NO ☐

   IF YES which ones:

   ----

5. Do you listen to the radio YES ☐ NO ☐

   watch T.V. YES ☐ NO ☐

   go to films YES ☐ NO ☐

   read fiction books YES ☐ NO ☐

   read nonfiction books YES ☐ NO ☐

6. Do you belong to any clubs, societies or group YES ☐ NO ☐

   IF YES which ones:

   ----

7. Have you visited a public library in the last 6 months YES ☐ NO ☐

   IF YES was it to
   borrow books ☐
   use reference section
   use reading section ☐
   ask for information
   other (specify) ☐

Office use only

8. If you needed to find out information on some common problem, what would you do:

9. If you needed some information on some social welfare problem, what would you do:

10. If you needed some information about a housing problem, what would you do:

11. Have you been to any of the following for help in the last year on any subject.

priest ☐ teacher ☐ doctor ☐
lawyer ☐ librarian ☐ social worker ☐
public official ☐ friends ☐

Office use only

Questionnaire No

MODULE I

AGRICULTURAL QUESTIONNAIRE

Small Farm/Establishment.

1. Name of owner/proprietor:

2. Name of area:

3. Size in acres)

4. Main crops grown: (in Kgs.)

	Crop	Total (Kgs)	Amount sold (Kgs.)
1.			
2.			
3.			
4.			

5. Type and number of livestock:

	Name	Number
1.		
2.		
3.		
4.		
5.		

6. Amount of fertilizer used last year

Natural ________ Kgs. Synthetic ________ Kgs.

7. Type and number of implements used and whether owned or shared.

Type	Number	Owned	Shared
Plough (tractor drawn)			
Plough (ox drawn)			
Primitive plough			
Tractor			
Reaping/Threshing machine			
Trucks/jeeps			
Ox/horse carts			
Hoes, spades, etc.			

Office use onl

8. Are the main crops grown mainly:

for cash ☐ for consumption ☐

9. Do you read any printed documents such as documents journals, government pamphlets regarding agriculture crops, techniques, etc.

YES ☐ NO ☐

IF YES which ones:

____

10. What is the main source of your information concerning agricultural techniques:

____

11. What about new produces (such as fetilizer or equipment) how do you hear about them:

____

12. Do you use any information services

YES ☐ NO ☐

IF YES which ones:

____

13. Is there any way in which your information requirements could be improved:

____

____

____

14. What was the money income of the farm last year ______

15. Do you possess a radio YES ☐ NO ☐

(H2)

Office use only

MODULE J

LARGE AGRICULTURAL ESTABLISHMENTS

(Q. 1 - 7 same as Small Farm Module)

8. Is the establishment part of a larger organization YES ☐ NO ☐

9. a) Do you regularly read any documents, journals in connection with

   (i) new techniques, products YES ☐ NO ☐

   (ii) market and trade conditions YES ☐ NO ☐

   (iii) general agricultural information YES ☐ NO ☐

   b) IF YES to any of above, which ones:

   ____

   ____

10. Which of the following information services do you use (TICK ALL APPLICABLE)

    trade journals ☐
    govt. & official documents/manuals ☐
    govt. & official broadcasts ☐
    commercial information services ☐

11. Is there any type of information in connection with agriculture that you would like to receive YES ☐ NO ☐

    IF YES which:

    ____

    ____

office use only

12. Are there any ways in which your information requirements could be better met or improved:

YES ☐ NO ☐

IF YES in what way

____

____

13. a) How many employees/workers do you have ☐

b) How many can read ☐

14. What was the total money value of last year's production ☐

MODULE K

EXAMPLE OF CONTACT SHEET

CONTACT SHEET

		Questionnaire No.	
Admin. Area	Number	Address Serial No.	Interviews

Could you please tell me how many people live here ____

Could you tell me each of them please
(list respondent first)

	Name	Age	Occupation	Marital Status	Educ. Level	Rel. to respondent.
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

	Date	Time	Result of call
1.			
2.			
3.			
4.			

"END OF DOCUMENT"